T N & Associates, Inc.
Engineering and Science

October 1, 2003

Mr. Michael Ribordy
On-Scene Coordinator
Emergency Response Branch
U.S. Environmental Protection Agency Region 5
77 West Jackson Boulevard
Chicago, IL 60604

Subject: **Site Assessment Report**
Schroud Property Site
Chicago, Cook County, Illinois
Technical Direction Document No. S05-0208-010
Tetra Tech Contract No. 68-W-00-129

Dear Mr. Ribordy:

T N & Associates, Inc. (TN&A), a subcontractor for the Tetra Tech EM Inc. Superfund Technical Assessment and Response Team (START), is submitting the enclosed site assessment report for the Schroud Property site in Chicago, Illinois. If you have any questions or comments about the report, please contact me at (312) 220-7000.

Sincerely,

Raghu Nagam

Raghu Nagam
Project Manager

Enclosure

SITE ASSESSMENT REPORT
SCHROUD PROPERTY SITE
CHICAGO, COOK COUNTY, ILLINOIS

Prepared for:

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region 5 Emergency Response Branch
77 West Jackson Boulevard
Chicago, IL 60604

TDD No.:	S05-0208-010
Date Prepared:	October 1, 2003
Contract No.:	68-W-00-129
Prepared by:	T N & Associates, Inc.
START Project Manager:	Raghu Nagam
Telephone No.:	(312) 220-7000
U.S. EPA On-Scene Coordinator:	Michael Ribordy
Telephone No.:	(312) 886-4592

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1.0 INTRODUCTION

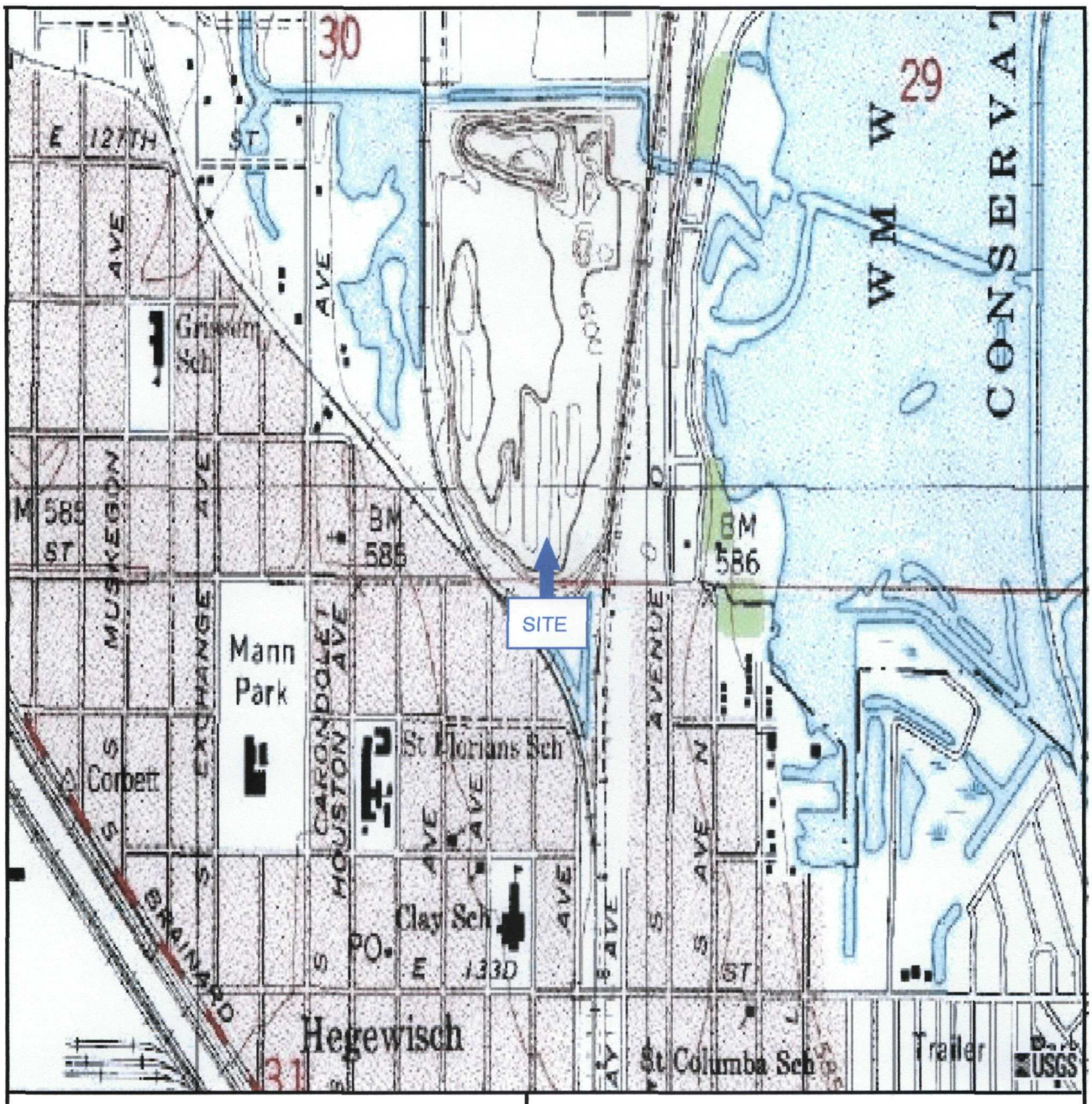
T N & Associates, Inc. (TN&A), a subcontractor for the Tetra Tech EM Inc. Superfund Technical Assessment and Response Team (START), has prepared this site assessment report in accordance with the requirements of U.S. Environmental Protection Agency (U.S. EPA) Technical Direction Document (TDD) No. S05-0208-010, which U.S. EPA assigned to START. The scope of this TDD was to conduct site assessment activities at Area 5 of the Schroud Property (Schroud) site in Chicago, Cook County, Illinois. START was tasked to prepare a health and safety plan and conduct a site assessment, including air monitoring, soil sampling, documentation of on-site conditions with written logbook notes and a still camera (see Appendix A), analytical data validation (see Appendix B), and preparation of a site assessment report.

This site assessment report discusses the site background, site assessment activities, sample analytical results, potential threats that may be associated with the Schroud site, and provides a summary of site assessment activities and findings.

2.0 SITE BACKGROUND

The Schroud Property site is located at 2000 East 130th Street in Chicago, Cook County, Illinois (see Figure 1). The site consists of several slag piles in an abandoned open area occupying approximately 55 acres. The site is bordered by Wolf Creek to the north, 130th Street to the south, Penna Railroad and Avenue O to the east, and South Chicago and Southern Railroad tracks to the west. Wolf Creek flows east at the northern border of the site and into Wolf Lake. The property north of the site is owned by Ford Motor Development.

The City of Chicago Department of Environment (CDOE) retained Carnow, Conibear, & Associates, LTD. (CCA), to conduct a Phase I environmental site assessment (ESA) at the Schroud Property site because of concerns about potential site-related health hazards to nearby residences and possible environmental impacts to Wolf Creek, a major tributary to Wolf Lake. The Phase I ESA was completed on June 11, 1999. According to the ESA report, the site was used as an inorganic landfill from 1971 to 1977. Steel mill slag was deposited at the site prior to landfilling activities. The ESA report recommended subsurface soil and groundwater investigation. Carlson Environmental, Inc. (Carlson), as a follow up of Phase I ESA, collected soil boring samples from 0 to 12 feet below ground surface (bgs). These boring sample results indicated toxicity characteristic leaching procedure (TCLP) concentrations of lead, cadmium, and selenium above the values summarized in Title 40 of the *Code of Federal Regulations* (CFR), Part 261.24, Table 1, "Maximum Concentration of Contaminants for the Toxicity Characteristic." Analytical results of groundwater samples collected by Carlson indicate contamination by metals and volatile organic compounds (VOCs). On June 28, 2002, CDOE referred the site to the U.S EPA Region 5 Emergency Response Branch for a time-critical removal assessment pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).



Source: Modified from TerraServer, USGS Topographic Map for Chicago, Illinois, 1991

SCHROUD PROPERTY SITE
CHICAGO, ILLINOIS

TDD No. S05-0208-010

FIGURE 1

SITE LOCATION MAP

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3.0 SITE ASSESSMENT ACTIVITIES

Site assessment activities at the Schroud Property site included site reconnaissance and sampling activities. Each activity is discussed below.

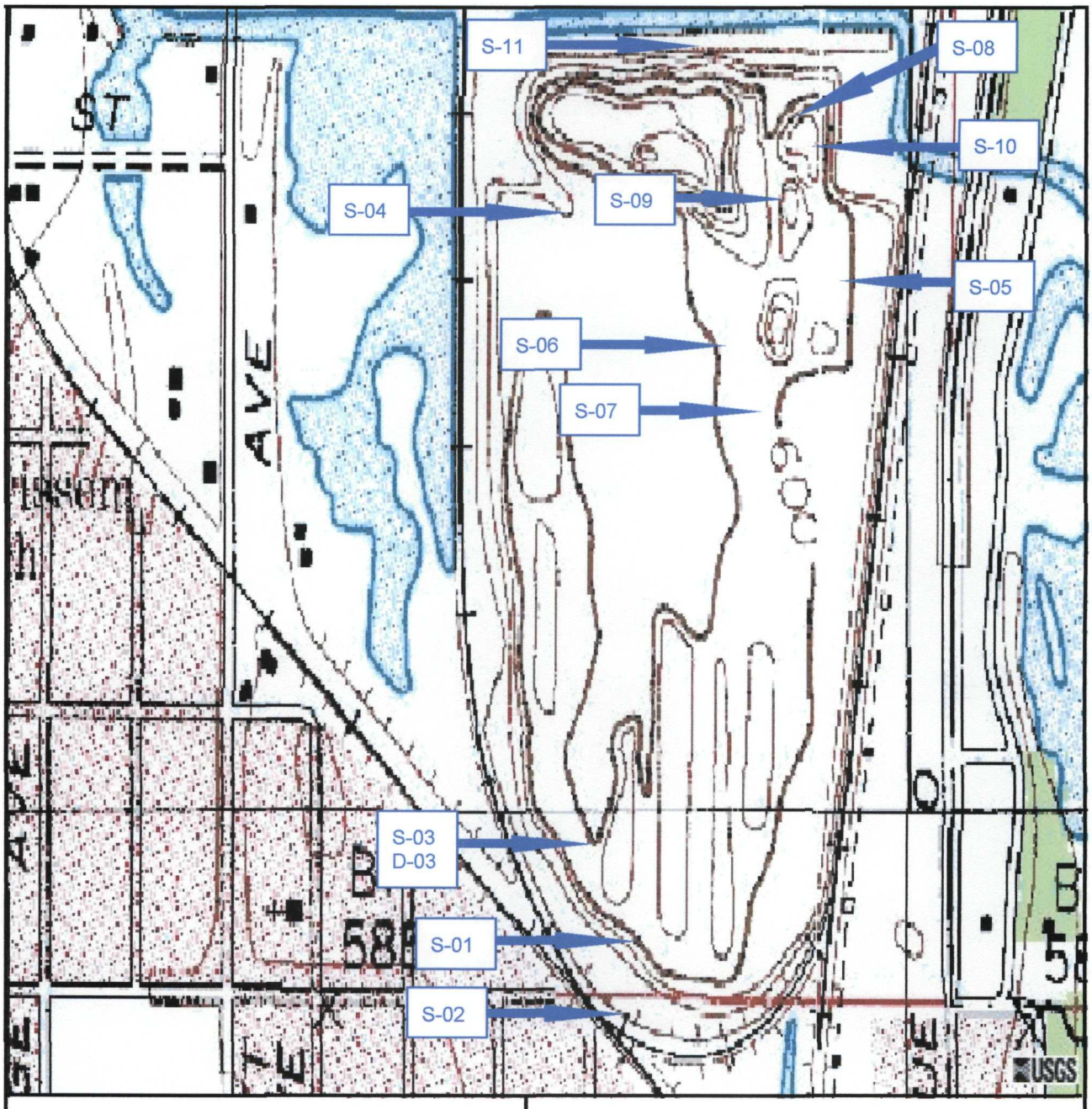
3.1 SITE RECONNAISSANCE

On September 19, 2002, U.S. EPA On-Scene Coordinator (OSC) Mike Collins and START conducted an on-site reconnaissance to document site conditions and determine potential sampling locations. OSC Collins met with site owner Mr. Donald Schroud at the site and discussed potential site activities.

3.2 SAMPLING ACTIVITIES

START prepared a site sampling plan that was approved by the U.S. EPA on September 19, 2002. The plan included soil sampling of slag piles at various on-site locations and surface soil sampling to evaluate potential threats associated with direct contact with on-site soils.

START and the OSC conducted sampling activities on September 19, 2002. OSC Collins and START identified 11 on-site sampling locations (see Figure 2). All soil samples were collected from 0 to 6 inches below ground surface (bgs). Soil sample S-01 was collected from the southern portion of the site from the access road north of 130th Street. Soil sample S-02 was collected from a soil mound directly southwest of S-01 from north of Brandon and Burley Avenues. Soil sample S-03 and a duplicate (D-03) were collected northwest of S-01 near the base of the southwest slag pile. Soil sample S-04 was collected east of the rail line at the western property boundary. Soil sample S-05 was collected west of Avenue O. Soil sample S-06 was collected west of a processed slag pile and southwest of S-05. Soil sample S-07 was collected from the southeast processed slag pile. Soil sample S-08 was collected from a small pile located at the northern property boundary. Soil sample S-09 was collected south of soil sample S-08 from a small slag pile. Soil sample S-10 was collected from a slag pile southeast of soil sample S-08. Soil sample S-11 was collected from south of Wolf Creek just across from the Ford Motor Development property at the northern site boundary.



0 200yd

NORTH

—— = Slag Pile

Source: Modified from TerraServer, USGS Topographic Map for Chicago, Illinois, 1991

SCHROUD PROPERTY SITE
CHICAGO, ILLINOIS

TDD No. S05-0208-010

FIGURE 2

SAMPLING LOCATION MAP

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All sampling locations were photographed (see Appendix A). Soil samples were packaged and hand delivered to the U.S. EPA Central Regional Laboratory, on September 20, 2002. The 12 soil samples were analyzed for target analyte list (TAL) and TCLP Resource Conservation and Recovery Act (RCRA) metals.

4.0 SAMPLE ANALYTICAL RESULTS

The 12 soil samples, S-01 through S-11 and duplicate soil sample D-03, were analyzed for TAL and TCLP RCRA metals. The TCLP analytical results for arsenic, chromium, lead, selenium, and silver were below laboratory quantitation limits. TCLP metals detected at concentrations above laboratory quantitation limits included barium and cadmium. Appendix B contains the validated analytical package of all sample data. Table 1 lists detected analytes and their concentrations.

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
SCHROUD PROPERTY SITE
CHICAGO, COOK COUNTY, ILLINOIS

	Tier 1 Soil Remediation Objectives[1]				Sample Identification No. and Analytical Laboratory Method											
	Industrial-Commercial		Construction Worker													
Metal	Ingestion (mg/kg)	Inhalation (mg/kg)	Ingestion (mg/kg)	Inhalation (mg/kg)	S-01 Total (mg/kg)	S-01 TCLP (mg/L)	S-02 Total (mg/kg)	S-02 TCLP (mg/L)	S-03 Total (mg/kg)	S-03 TCLP (mg/L)	D-03 Total (mg/kg)	D-03 TCLP (mg/L)	S-04 Total (mg/kg)	S-04 TCLP (mg/L)	S-05 Total (mg/kg)	S-05 TCLP (mg/L)
Aluminum	NT	NT	NT	NT	14,000	NA	12,000	NA	11,000	NA	14,000	NA	8,900	NA	7,300	NA
Barium	140,000	910,000	14,000	870,000	200	0.797	140	0.516	150	0.683	160	0.714	130	0.789	95	0.593
Beryllium	1	2,100	29	44,000	0.84	NA	0.10U	NA	0.14U	NA	0.13U	NA	0.52	NA	0.16	NA
Cadmium	2,000	2,800	200	59,000	4.3	0.011	2.0U	0.010U	7.0	0.021	5.5	0.019	2.8U	0.010U	2.0U	0.010U
Calcium	NT	NT	NT	NT	210,000	NA	260,000	NA	180,000	NA	210,000	NA	190,000	NA	96,000	NA
Chromium	10,000	420	4,100	8,800	2,900	0.030U	5,100	0.030U	3,400	0.030U	3,200	0.030U	2,100	0.030U	1,700	0.030U
Cobalt	120,000	NT	12,000	NT	2.9U	NA	2.5	NA	6.6	NA	4.5	NA	4.0	NA	4.7	NA
Copper	82,000	NT	8,200	NT	95	NA	83	NA	110	NA	110	NA	73	NA	69	NA
Iron	NT	NT	NT	NT	200,000	NA	190,000	NA	200,000	NA	160,000	NA	160,000	NA	99,000	NA
Lead	400	NT	400	NT	410	0.100U	210	0.100U	610	0.100U	370	0.100U	920	0.100U	300	0.100U
Magnesium	NT	NT	NT	NT	34,000	NA	31,000	NA	37,000	NA	25,000	NA	26,000	NA	12,000	NA
Manganese	96,000	91,000	9,600	8,700	38,000	NA	39,000	NA	30,000	NA	32,000	NA	29,000	NA	16,000	NA
Mercury	610	540,000	61	52,000	0.06	NA	0.10U	NA	0.05	NA	0.08	NA	0.10U	NA	0.05	NA
Nickel	41,000	21,000	4,100	440,000	49	NA	93	NA	110	NA	110	NA	56	NA	63	NA
Potassium	NT	NT	NT	NT	380	NA	250U	NA	360U	NA	340U	NA	350U	NA	250U	NA
Silver	10,000	NT	1,000	NT	1.7	0.020U	2.5	0.020U	2.3	0.020U	1.6	0.020U	1.4U	0.020U	1.0U	0.020U
Sodium	NT	NT	NT	NT	310	NA	240	NA	290U	NA	540	NA	280U	NA	200U	NA
Strontium	NT	NT	NT	NT	170	NA	110	NA	86	NA	100	NA	140	NA	56	NA
Titanium	NT	NT	NT	NT	1,900	NA	1,400	NA	1,200	NA	1,500	NA	1,200	NA	730	NA
Vanadium	14,000	NT	1,400	NT	290	NA	400	NA	230	NA	300	NA	210	NA	130	NA
Zinc	610,000	NT	61,000	NT	220	NA	100	NA	270	NA	230	NA	150	NA	170	NA

TABLE 1 (Continued)
SOIL SAMPLE ANALYTICAL RESULTS
SCHROUD PROPERTY SITE
CHICAGO, COOK COUNTY, ILLINOIS

	Tier 1 Soil Remediation Objectives[1]				Sample Identification No. and Analytical Laboratory Method											
	Industrial-Commercial		Construction Worker													
Metal	Ingestion (mg/kg)	Inhalation (mg/kg)	Ingestion (mg/kg)	Inhalation (mg/kg)	S-06 Total (mg/kg)	S-06 TCLP (mg/L)	S-07 Total (mg/kg)	S-07 TCLP (mg/L)	S-08 Total (mg/kg)	S-08 TCLP (mg/L)	S-09 Total (mg/kg)	S-09 TCLP (mg/L)	S-10 Total (mg/kg)	S-10 TCLP (mg/L)	S-11 Total (mg/kg)	S-11 TCLP (mg/L)
Aluminum	NT	NT	NT	NT	11,000	NA	13,000	NA	16,000	NA	11,000	NA	13,000	NA	12,000	NA
Barium	140,000	910,000	14,000	870,000	140	0.749	110	0.600	52	0.219	150	0.782	150	0.546	140	0.783
Beryllium	1	2,100	29	44,000	0.12U	NA	0.13U	NA	0.10U	NA	0.10U	NA	0.090U	NA	0.14U	NA
Cadmium	2,000	2,800	200	59,000	2.3U	0.010U	2.5U	0.010U	2.0U	0.010U	2.0U	0.010U	1.8U	0.010U	2.8U	0.010U
Calcium	NT	NT	NT	NT	200,000	NA	190,000	NA	200,000	NA	180,000	NA	230,000	NA	190,000	NA
Chromium	10,000	420	4,100	8,800	3,600	0.030U	2,900	0.030U	2,500	0.030U	2,800	0.030U	3,100	0.030U	3,200	0.030U
Cobalt	120,000	NT	12,000	NT	7.4	NA	9.2	NA	5.2	NA	7.2	NA	4.4	NA	5.7	NA
Copper	82,000	NT	8,200	NT	170	NA	220	NA	96	NA	150	NA	72	NA	130	NA
Iron	NT	NT	NT	NT	270,000	NA	330,000	NA	230,000	NA	230,000	NA	170,000	NA	230,000	NA
Lead	400	NT	400	NT	520	0.100U	890	0.100U	720	0.100U	560	0.100U	820	0.100U	640	0.100U
Magnesium	NT	NT	NT	NT	28,000	NA	29,000	NA	33,000	NA	27,000	NA	37,000	NA	30,000	NA
Manganese	96,000	91,000	9,600	8,700	33,000	NA	30,000	NA	23,000	NA	28,000	NA	34,000	NA	28,000	NA
Mercury	610	540,000	61	52,000	0.10U	NA	0.10U	NA	0.10U	NA	0.10U	NA	0.10U	NA	0.10U	NA
Nickel	41,000	21,000	4,100	440,000	140	NA	220	NA	230	NA	220	NA	230	NA	130	NA
Potassium	NT	NT	NT	NT	290U	NA	320U	NA	250U	NA	250U	NA	360	NA	350U	NA
Silver	10,000	NT	1,000	NT	1.2U	0.020U	1.3U	0.020U	1.0U	0.020U	1.0U	0.020U	2.3	0.020U	1.4U	0.020U
Sodium	NT	NT	NT	NT	230U	NA	250	NA	200U	NA	200	NA	260	NA	290	NA
Strontium	NT	NT	NT	NT	88	NA	88	NA	93	NA	96	NA	110	NA	95	NA
Titanium	NT	NT	NT	NT	1,300	NA	1,400	NA	1,200	NA	1,100	NA	1,400	NA	1,100	NA
Vanadium	14,000	NT	1,400	NT	310	NA	310	NA	280	NA	270	NA	360	NA	300	NA
Zinc	610,000	NT	61,000	NT	140	NA	180	NA	220	NA	130	NA	92	NA	160	NA

Notes:

[1] = Tier 1 Soil Remediation Objectives for Industrial-Commercial Properties based on Illinois Pollution Control Board, 2002. 35 *Illinois Administrative Code* Part 742, Tiered Approach to Corrective Action Objectives, February 5

NT = No toxicity criteria available for this exposure route NA = Not analyzed mg/kg = Milligram per kilogram

mg/L = Milligram per liter TCLP = Toxicity characteristic leaching procedure 520 = Tier 1 Soil Remediation Objectives exceedences

U = The analyte was analyzed for but was not detected at a concentration above the reported sample quantitation limit.

5.0 POTENTIAL SITE-RELATED THREATS

Potential site-related threats were evaluated in relation to contaminants' toxicity characteristics and their human exposure route-specific values. Toxicity characteristics of site contaminants were evaluated against concentrations summarized in Title 40 of the *Code of Federal Regulations* (CFR), Part 261.24, Table 1, "Maximum Concentration of Contaminants for the Toxicity Characteristic." Concentrations of contaminants found in site surficial soils were compared with *Illinois Administrative Code* (IAC) Title 35, Part 742, "Tiered Approach to Corrective Action Objectives" (TACO), Tier 1 soil remediation objectives (RO). Specifically, the surface soil concentrations were evaluated against the ingestion and inhalation ROs listed in Section 742, Table B: Tier 1 Soil Remediation Objectives for Industrial-Commercial Properties. START also developed receptor-specific lead remediation objectives for the Schroud site, which are included in Appendix C .

None of the analytical results of the samples collected by START exceeded the TCLP concentrations listed in 40 CFR Part 261.24 Table 1, to be characterized as hazardous waste. However, historical sampling has shown hazardous waste (lead, cadmium, and selenium) up to 12 feet bgs. Chromium, measured as chromium total, lead, and manganese concentrations in surficial soil exceeded the TACO values for Tier 1 Soil Remediation Objectives for Industrial-Commercial Properties. Chromium concentrations exceed the industrial-commercial inhalation RO in all samples and exceed the construction worker ingestion RO in one sample (S-02). Manganese concentrations exceed the construction worker ingestion and inhalation ROs in all samples. Lead concentrations exceed the industrial-commercial and construction worker ingestion ROs in nine of twelve START collected soil samples.

START developed receptor-specific lead ROs for the Schroud site for comparison to the concentrations of lead measured in the 12 soil samples collected during the removal assessment. The site-specific ROs developed for the Schroud site are based on the assumption that the site will be developed for industrial purposes and are 1,014 mg/kg and 845 mg/kg for the Industrial-Commercial and Construction Worker scenarios, respectively. The Construction Worker RO (845 mg/day) is based on several conservative assumptions. In particular, the baseline soil ingestion rate (IR_0) calculated based on U.S. EPA-recommended body part-specific adherence

values was 38.5 mg/day. For the assessment of potential exposure to lead in Area 5, this value was conservatively rounded up to 100 mg/day, an overestimation of about a factor of 3. Lead was measured at soil concentrations less than the site-specific Industrial-Commercial Worker RO in all soil samples and at concentrations exceeding the site-specific construction worker RO at two sampling locations (S-04 & S-07). The magnitude of the exceedences (920 mg/kg and 890 mg/kg versus 845 mg/kg) were not especially large. Because of the conservatism incorporated into the Construction Worker RO, the lead concentrations of 920 and 890 mg/kg in samples S-04 and S-07, respectively, are not considered to pose significant risks. However, the number of soil samples evaluated for developing ROs may not be proportionate to the 55-acre site and hence the conclusions based on comparison of analytical results from this limited number of samples to site-specific ROs should be considered preliminary.

Based on the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) Section 300.415, U.S. EPA may take removal action to abate, prevent, minimize, stabilize, mitigate, or eliminate a release or potential release that poses a threat to the public health or welfare of the United States or the environment. Section 300.415(b)(2) of the NCP lists factors to be considered when determining appropriateness of a removal action. Based on comparison to TACO Tier 1 soil ROs, lead in surface soil at the site poses a potential threat to industrial-commercial and construction workers through the ingestion exposure route, manganese in surface soil poses a potential threat to construction workers through the ingestion and inhalation exposure routes, and chromium in surface soil at the site poses a potential threat to industrial-commercial worker through the inhalation exposure route. A potential direct contact exposure threat from chromium (defined in this case as a potential carcinogenic risk equal to or greater than 1E-06) may be present if hexavalent chromium is present at concentrations corresponding to 1.3 to 3.8 percent or more of the total chromium measured in site soil. In order to determine whether chromium in soil presents a direct contact exposure threat, the concentration of hexavalent chromium must be measured. START samples were analyzed for total chromium and hence there is an uncertainty of hexavalent chromium's potential exposure threat under Construction Worker scenario. The analytical results of the samples obtained during this removal evaluation are inconclusive to determine the appropriateness of a removal action to mitigate or eliminate a release or potential release that poses a threat to the public health or welfare of the United States or the environment.

6.0 SUMMARY

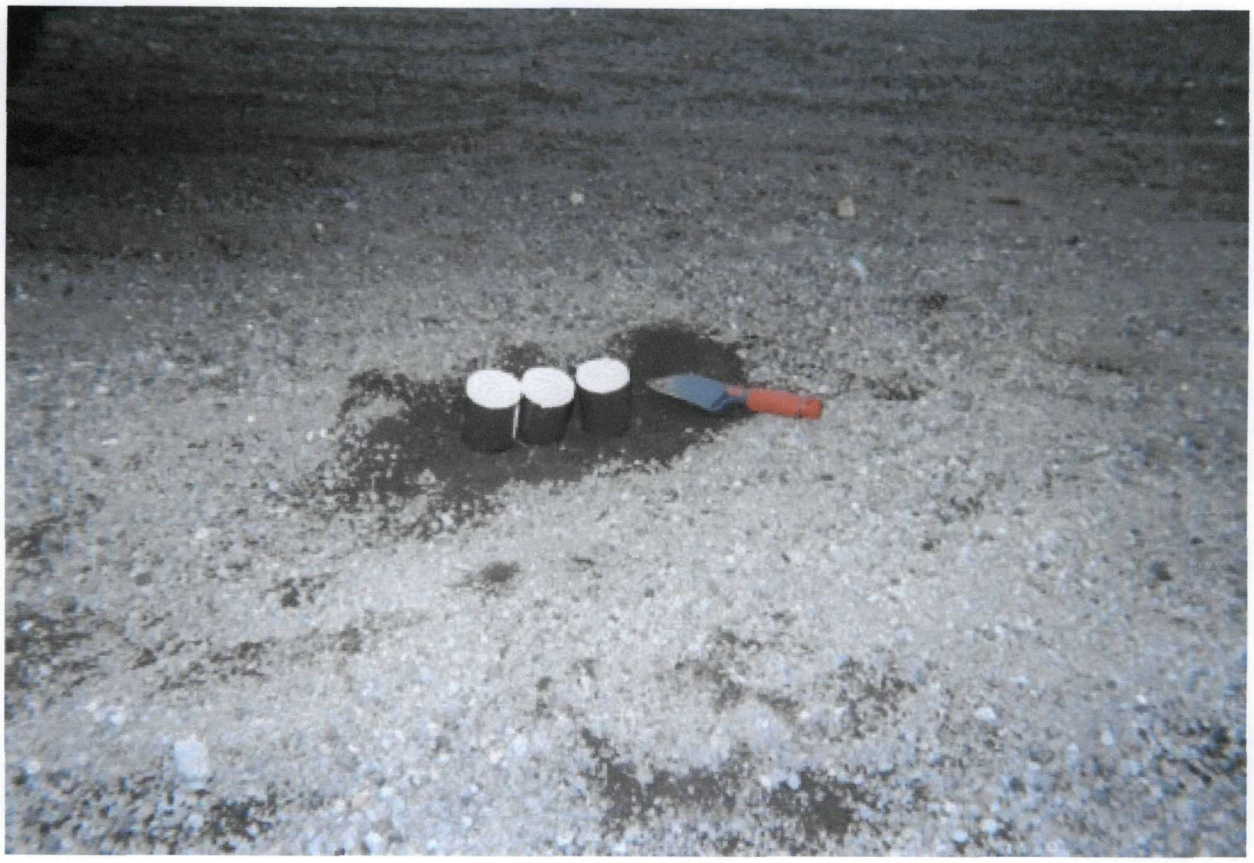
On September 19, 2002, U.S. EPA OSC Mike Collins and START conducted site assessment activities at the Shroud Property site in Chicago, Illinois. Site assessment activities included a site reconaissance and collection of 12 soil samples from 0 to 6 inches bgs. Samples were analyzed for TAL and TCLP RCRA metals. Sample analytical results were compared to maximum allowable concentrations pursuant to 40 CFR, Part 261.24, Table 1, TACO Tier 1 soil ROs for Industrial-Commercial and Construction Workers, and to receptor-specific lead ROs developed for the site. None of the TCLP concentrations measured in START collected soil samples exceeded the maximum allowable concentrations in 40 CFR, Part 261.24, Table 1. Lead, chromium, and manganese in START collected soil samples exceed TACO Tier 1 soil ROs for both Industrial-Commercial and Construction Worker scenarios. Historical results of metal analysis, both total and TCLP, also exceed TACO and TCLP regulatory levels, especially for lead, cadmium, and selenium, in sample borings up to 12 feet bgs. Receptor-specific lead ROs developed for the site were exceeded in only two samples and may not pose significant risks. However, any conclusions based on comparison of analytical results from the START collected soil samples to ROs (including receptor-specific lead ROs developed for the site) should be considered preliminary because of the limited number of samples (12) collected across the 55-acre site.

At the request of the Agency for Toxic Substances and Disease Registry (ATSDR), the Illinois Department of Public Health (IDPH) has reviewed the analytical data for the Schroud Property Site. The IDPH concluded "Based on the limited data and site description provided in the report, we conclude the site does not pose a public health hazard. Elevated levels of lead, chromium, and manganese are present in some of the on-site surface soil samples; however, it is not clear that persons are currently being exposed to the surface soil." IDPH recommended that more samples be collected to better characterize the 55-acre site if the site is to be developed for industrial-commercial use and that chromium in these samples should be speciated into chromium III and chromium VI for better dose-response analysis. (see Appendix D).

APPENDIX A

PHOTOGRAPHIC LOG

(11 Pages)



OFFICIAL PHOTOGRAPH NO. 1
U.S. ENVIRONMENTAL PROTECTION AGENCY

Subject: Soil sample S-01 collected from the southern portion of the site from the access road north of 130th Street

Location: Schroud Property Site
Chicago, Cook County, Illinois

Orientation: Southeast
TDD Number: S05-0208-010 **Date:** Tuesday, September 19, 2002
Photographer: Raghu Nagam, START

OFFICIAL PHOTOGRAPH NO. 2
U.S. ENVIRONMENTAL PROTECTION AGENCY

Subject: Soil sample S-02 collected from a soil mound directly southwest of S-01 from north of Brandon and Burley Avenues

Location: Schroud Property Site
Chicago, Cook County, Illinois

Orientation: Northwest
TDD Number: S05-0208-010 **Date:** Tuesday, September 19, 2002
Photographer: Raghu Nagam, START

OFFICIAL PHOTOGRAPH NO. 3
U.S. ENVIRONMENTAL PROTECTION AGENCY

Subject: Soil sample S-03 and a duplicate (D-03) collected from northwest of S-01 near the base of the southwest slag pile

Location: Schroud Property Site
Chicago, Cook County, Illinois

Orientation: Northeast
TDD Number: S05-0208-010 **Date:** Tuesday, September 19, 2002
Photographer: Raghu Nagam, START

OFFICIAL PHOTOGRAPH NO. 4
U.S. ENVIRONMENTAL PROTECTION AGENCY

Subject: Soil sample S-04 collected from east of the rail line at the western property boundary

Location: Schroud Property Site
Chicago, Cook County, Illinois

Orientation: Northwest
TDD Number: S05-0208-010 **Date:** Tuesday, September 19, 2002
Photographer: Raghu Nagam, START

OFFICIAL PHOTOGRAPH NO. 5
U.S. ENVIRONMENTAL PROTECTION AGENCY

Subject: Soil sample S-05 collected from west of Avenue O

Location: Schroud Property Site
Chicago, Cook County, Illinois

Orientation: North
TDD Number: S05-0208-010 **Date:** Tuesday, September 19, 2002
Photographer: Raghu Nagam, START

OFFICIAL PHOTOGRAPH NO. 6
U.S. ENVIRONMENTAL PROTECTION AGENCY

Subject: Soil sample S-06 collected from west of a processed slag pile and southwest of S-05

Location: Schroud Property Site
Chicago, Cook County, Illinois

Orientation: East
TDD Number: S05-0208-010 **Date:** Tuesday, September 19, 2002
Photographer: Raghu Nagam, START

OFFICIAL PHOTOGRAPH NO. 7
U.S. ENVIRONMENTAL PROTECTION AGENCY

Subject: Soil sample S-07 collected from the southeast processed slag pile

Location: Schroud Property Site
Chicago, Cook County, Illinois

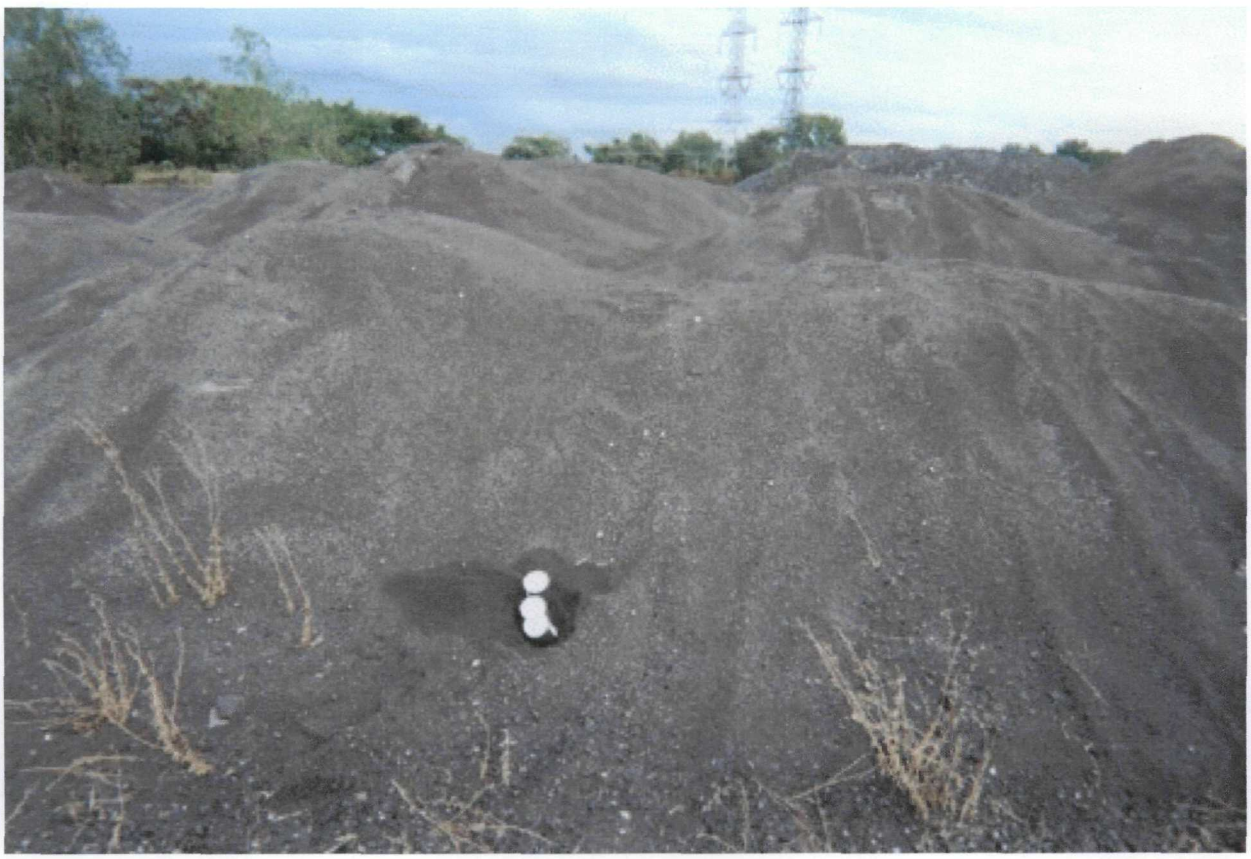
Orientation: Northwest
TDD Number: S05-0208-010 **Date:** Tuesday, September 19, 2002
Photographer: Raghu Nagam, START

OFFICIAL PHOTOGRAPH NO. 8
U.S. ENVIRONMENTAL PROTECTION AGENCY

Subject: Soil sample S-08 collected from a small pile located at the northern property boundary

Location: Schroud Property Site
Chicago, Cook County, Illinois

Orientation: North
TDD Number: S05-0208-010 **Date:** Tuesday, September 19, 2002
Photographer: Raghu Nagam, START



OFFICIAL PHOTOGRAPH NO. 9
U.S. ENVIRONMENTAL PROTECTION AGENCY

Subject: Soil sample S-09 collected from south of soil sample S-08 from a small slag pile

Location: Schroud Property Site
Chicago, Cook County, Illinois

Orientation: North
TDD Number: S05-0208-010 **Date:** Tuesday, September 19, 2002
Photographer: Raghu Nagam, START

OFFICIAL PHOTOGRAPH NO. 10
U.S. ENVIRONMENTAL PROTECTION AGENCY

Subject: Soil sample S-10 collected from a slag pile southeast of soil sample S-08

Location: Schroud Property Site
Chicago, Cook County, Illinois

Orientation: West
TDD Number: S05-0208-010 **Date:** Tuesday, September 19, 2002
Photographer: Raghu Nagam, START

OFFICIAL PHOTOGRAPH NO. 11
U.S. ENVIRONMENTAL PROTECTION AGENCY

Subject: Soil sample S-11 collected from south of Wolf Creek just across from the Ford Motor Development property at the northern site boundary

Location: Schroud Property Site
Chicago, Cook County, Illinois

Orientation: North
TDD Number: S05-0208-010 **Date:** Tuesday, September 19, 2002
Photographer: Raghu Nagam, START

APPENDIX B

VALIDATED ANALYTICAL DATA PACKAGE

(48 Sheets)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 CENTRAL REGIONAL LABORATORY

536 SOUTH CLARK STREET

CHICAGO, ILLINOIS 60605

Date: 11/4/02

Subject: Review of Region 5 Data for Schroud Property, Chicago IL

From: Kathleen Swan, Analyst KS
Region 5 Central Regional Laboratory

To: Superfund, US EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604

Attached are Results for: Schroud Property, Chicago IL

Analyses included in this report:

Metals full ICP (S)

Sylvia Griffin NOV 0 4/2002

Data Management Coordinator and Date Received

Date Transmitted: NOV 0 4/2002

Please have the U.S. EPA Project Manager/Officer call the CRL Sample Coordinator at 3-7444 for any comments or questions.

Please sign and date this form below and return it with any comments to:

Sylvia Griffin
Data Management Coordinator
Region 5 Central Regional Laboratory
ML-10C

_____ / / _____

Received by and Date

Comments:

Environmental Protection Agency Region 5
Central Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Superfund, US EPA Region 5	Project:Schroud Property, Chicago IL	
77 West Jackson Boulevard	Project Number:02TN6	**Reported:**
Chicago IL, 60604	Project Manager:Howard Pham	Nov-04-02 15:26

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
02TN6D03	0209009-01	Soil	Sep-19-02 10:45	Sep-20-02 11:02
02TN6S01	0209009-02	Soil	Sep-19-02 10:05	Sep-20-02 11:02
02TN6S02	0209009-03	Soil	Sep-19-02 10:20	Sep-20-02 11:02
02TN6S03	0209009-04	Soil	Sep-19-02 10:45	Sep-20-02 11:02
02TN6S04	0209009-05	Soil	Sep-19-02 11:05	Sep-20-02 11:02
02TN6S05	0209009-06	Soil	Sep-19-02 11:25	Sep-20-02 11:02
02TN6S06	0209009-07	Soil	Sep-19-02 11:40	Sep-20-02 11:02
02TN6S07	0209009-08	Soil	Sep-19-02 12:05	Sep-20-02 11:02
02TN6S08	0209009-09	Soil	Sep-19-02 12:20	Sep-20-02 11:02
02TN6S09	0209009-10	Soil	Sep-19-02 12:25	Sep-20-02 11:02
02TN6S10	0209009-11	Soil	Sep-19-02 12:35	Sep-20-02 11:02
02TN6S11	0209009-12	Soil	Sep-19-02 12:40	Sep-20-02 11:02

KS

Kathleen Swan, Analyst

Narrative Date: 10 31 2002
Analyst: K. Swan
Batch Number: 0209009
Study: Schroud Property, Chicago IL
Parameter: ICP Metals

ICP NARRATIVE for Work Order Number 0209009

Twelve soil samples (0209009-01 through -12) were submitted for the analysis of ICP metals. The samples were collected on 09 19 02 and received by the CRL on 09 20 02.

The sample were dried, ground, and digested for ICP metals by L. Zintek on 09 21 02, following the 200.2 hot block standard digestion protocols for soil samples. All samples were digested within the six month hold time for metals. Sample analysis was performed on 10 01 02, 10 07 02, and 10 21 02.

All analytical results files, sample information files and reformat files for ICP can be found on the R5CRL data server using the following paths: h:\r5crl\vol3\metals\Kswan\0209009\3300dv

The narrative, QC summary spreadsheets, sample result calculation spreadsheets and the final sample report for ICP can be found on the R5CRL data server using the following path:
h:\r5crl\vol3\metals\Kswan\0209009\Reports

Results file 0209009 B2I2006 100102

It is noted that these samples are extraordinarily high in Mn and required a fifty-fold dilution. An interference check showed a possibly false positive on Zn of approximately 20 mg/kg, which is not greater than 20% for these samples, but every indication is that it is actually Zn contamination in the Mn stock, and thus would not affect the data.

Be had a low bias of as much as -0.0014 mg/L in the blanks, which could typically result in a low sample bias of -0.2 mg/kg; thus Be is flagged "L". Cu showed a slight high bias in the blanks, in one case as much as 0.067 mg/L, which could typically result in a high sample bias of up to 9.5 mg/kg, which is not greater than 20% for these samples, but since this is evidently a carryover from the reference standard, it does not affect data quality. Al, Ca, and Fe appeared slightly high in the blanks, but not significant. The first set of matrix spikes on sample 0209009-08, taken from jar 246986, was low in Ag (74%) and Ni (67%). The second set of matrix spikes on sample 0209009-08, taken from jar 246987, was low in Ag (78%), Co (74%), Cu (76%), Ni (36%), and Zn (79%). It is suggested that the field duplicates for -08 were not very homogeneous, also suggested by the presence of stones in the samples. The amount of Cr, Mn, Pb, and V in the sample exceeded the amount in the spike by greater than double, so the matrix spike is not a valid audit for these elements.

Narrative by: K Swan Chemist, USEPA
Date: 11 04 02

Results file 0209009 B2I2006 100702

Results for Ca, Cr, Fe, and Mn are taken from a 50-fold dilution. The instrument blank showed a very slight negative amount of Ca and a very slight positive amount of Mn, and this is negligible.

Results file 0209009 B2I2006 102102

The spikes for sample 0209009-02 is an invalid audit for Cr, Mn, and V due to the large amounts of these elements already in the sample.

Narrative by: K Swan Chemist, USEPA

Date: 11 04 02

Environmental Protection Agency Region 5
Central Regional Laboratory

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Superfund, US EPA Region 5	Project:Schroud Property, Chicago IL	
77 West Jackson Boulevard	Project Number:02TN6	**Reported:**
Chicago IL, 60604	Project Manager:Howard Pham	Nov-04-02 15:26

02TN6D03
0209009-01(Soil)
Sampled: Sep-19-02 10:45
Received: Sep-20-02 11:02

Metals by ICP

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	14000			1300	mg/kg	1	B2I2006	Sep-21-02	Oct-01-02
Barium	160			0.27	"	"	"	"	"
Beryllium	U			0.13	"	"	"	"	"
Cadmium	5.5			2.7	"	"	"	"	"
Calcium	210000			670	"	50	"	"	"
Chromium	3200			130	"	"	"	"	"
Cobalt	4.5			2.7	"	1	"	"	"
Copper	110			1.3	"	"	"	"	"
Iron	160000			67000	"	50	"	"	"
Lead	370			13	"	1	"	"	"
Magnesium	25000			13	"	"	"	"	"
Manganese	32000			34	"	50	"	"	"
Nickel	110			1.3	"	1	"	"	"
Potassium	U			340	"	"	"	"	"
Silver	1.6			1.3	"	"	"	"	"
Sodium	540			270	"	"	"	"	"
Strontium	100			0.27	"	"	"	"	"
Titanium	1500			0.67	"	"	"	"	"
Vanadium	300			8.1	"	"	"	"	"
Zinc	230			6.7	"	"	"	"	"

KS

Kathleen Swan, Analyst

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Central Regional Laboratory

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Superfund, US EPA Region 5	Project:Schroud Property, Chicago IL	
77 West Jackson Boulevard	Project Number:02TN6	**Reported:**
Chicago IL, 60604	Project Manager:Howard Pham	*Nov-04-02 15:26*

02TN6S01
0209009-02(Soil)
Sampled: Sep-19-02 10:05
Received: Sep-20-02 11:02

Metals by ICP

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	**14000**			1400	mg/kg	1	B2I2006	Sep-21-02	Oct-01-02
Barium	**200**			0.29	"	"	"	"	"
Beryllium	**0.84**			0.14	"	"	"	"	"
Cadmium	**4.3**			2.9	"	"	"	"	"
Calcium	**210000**			710	"	50	"	"	"
Chromium	**2900**			140	"	"	"	"	"
Cobalt	**U**			2.9	"	1	"	"	"
Copper	**95**			1.4	"	"	"	"	"
Iron	**200000**			71000	"	50	"	"	"
Lead	**410**			14	"	1	"	"	"
Magnesium	**34000**			14	"	"	"	"	"
Manganese	**38000**			36	"	50	"	"	"
Nickel	**49**			1.4	"	1	"	"	"
Potassium	**380**			360	"	"	"	"	"
Silver	**1.7**			1.4	"	"	"	"	"
Sodium	**310**			290	"	"	"	"	"
Strontium	**170**			0.29	"	"	"	"	"
Titanium	**1900**			0.71	"	"	"	"	"
Vanadium	**290**			8.6	"	"	"	"	"
Zinc	**220**			7.1	"	"	"	"	"

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77 West Jackson Boulevard	Project Number:02TN6	**Reported:**
Chicago IL, 60604	Project Manager:Howard Pham	Nov-04-02 15:26

02TN6S02
0209009-03(Soil)
Sampled: Sep-19-02 10:20
Received: Sep-20-02 11:02

Metals by ICP

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	12000			1000	mg/kg	1	B2I2006	Sep-21-02	Oct-01-02
Barium	140			0.20	"	"	"	"	"
Beryllium	U			0.10	"	"	"	"	"
Cadmium	U			2.0	"	"	"	"	"
Calcium	260000			500	"	50	"	"	"
Chromium	5100			100	"	"	"	"	"
Cobalt	2.5			2.0	"	1	"	"	"
Copper	83			1.0	"	"	"	"	"
Iron	190000			50000	"	50	"	"	"
Lead	210			10	"	1	"	"	"
Magnesium	31000			10	"	"	"	"	"
Manganese	39000			25	"	50	"	"	"
Nickel	93			1.0	"	1	"	"	"
Potassium	U			250	"	"	"	"	"
Silver	2.5			1.0	"	"	"	"	"
Sodium	240			200	"	"	"	"	"
Strontium	110			0.20	"	"	"	"	"
Titanium	1400			0.50	"	"	"	"	"
Vanadium	400			6.0	"	"	"	"	"
Zinc	100			5.0	"	"	"	"	"

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Superfund, US EPA Region 5	Project:Schroud Property, Chicago IL	
77 West Jackson Boulevard	Project Number:02TN6	**Reported:**
Chicago IL, 60604	Project Manager:Howard Pham	Nov-04-02 15:26

02TN6S03
0209009-04(Soil)
Sampled: Sep-19-02 10:45
Received: Sep-20-02 11:02

Metals by ICP

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	**11000**			1400	mg/kg	1	B2I2006	Sep-21-02	Oct-01-02
Barium	**150**			0.29	"	"	"	"	Oct-01-02
Beryllium	**U**			0.14	"	"	"	"	Oct-01-02
Cadmium	**7.0**			2.9	"	"	"	"	"
Calcium	**180000**			720	"	50	"	"	Oct-01-02
Chromium	**3400**			140	"	"	"	"	"
Cobalt	**6.6**			2.9	"	1	"	"	Oct-01-02
Copper	**110**			1.4	"	"	"	"	"
Iron	**200000**			72000	"	50	"	"	"
Lead	**610**			14	"	1	"	"	"
Magnesium	**37000**			14	"	"	"	"	Oct-01-02
Manganese	**30000**			36	"	50	"	"	Oct-01-02
Nickel	**110**			1.4	"	1	"	"	"
Potassium	**U**			360	"	"	"	"	"
Silver	**2.3**			1.4	"	"	"	"	"
Sodium	**U**			290	"	"	"	"	"
Strontium	**86**			0.29	"	"	"	"	Oct-01-02
Titanium	**1200**			0.72	"	"	"	"	"
Vanadium	**230**			8.6	"	"	"	"	Oct-01-02
Zinc	**270**			7.2	"	"	"	"	"

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Superfund, US EPA Region 5	Project:Schroud Property, Chicago IL	
77 West Jackson Boulevard	Project Number:02TN6	**Reported:**
Chicago IL, 60604	Project Manager:Howard Pham	Nov-04-02 15:26

02TN6S04
0209009-05(Soil)
Sampled: Sep-19-02 11:05
Received: Sep-20-02 11:02

Metals by ICP

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	**8900**			1400	mg/kg	1	B2I2006	Sep-21-02	Oct-01-02
Barium	**130**			0.28	"	"	"	"	"
Beryllium	**0.52**			0.14	"	"	"	"	"
Cadmium	**U**			2.8	"	"	"	"	"
Calcium	**190000**			700	"	50	"	"	"
Chromium	**2100**			140	"	"	"	"	"
Cobalt	**4.0**			2.8	"	1	"	"	"
Copper	**73**			1.4	"	"	"	"	"
Iron	**160000**			70000	"	50	"	"	"
Lead	**920**			14	"	1	"	"	"
Magnesium	***26000***			14	"	"	"	"	"
Manganese	**29000**			35	"	50	"	"	"
Nickel	**56**			1.4	"	1	"	"	"
Potassium	**U**			350	"	"	"	"	"
Silver	***U***			1.4	"	"	"	"	"
Sodium	**U**			280	"	"	"	"	"
Strontium	**140**			0.28	"	"	"	"	"
Titanium	**1200**			0.70	"	"	"	"	"
Vanadium	**210**			8.4	"	"	"	"	"
Zinc	**150**			7.0	"	"	"	"	"

KS
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Central Regional Laboratory

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Superfund, US EPA Region 5	Project:Schroud Property, Chicago IL	
77 West Jackson Boulevard	Project Number:02TN6	**Reported:**
Chicago IL, 60604	Project Manager:Howard Pham	Nov-04-02 15:26

02TN6S05
0209009-06(Soil)
Sampled: Sep-19-02 11:25
Received: Sep-20-02 11:02

Metals by ICP

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	7300			1000	mg/kg	1	B2I2006	Sep-21-02	Oct-01-02
Barium	95			0.20	"	"	"	"	"
Beryllium	0.16			0.10	"	"	"	"	"
Cadmium	U			2.0	"	"	"	"	"
Calcium	96000			500	"	50	"	"	"
Chromium	1700			100	"	"	"	"	"
Cobalt	4.7			2.0	"	1	"	"	"
Copper	69			1.0	"	"	"	"	"
Iron	99000			50000	"	50	"	"	"
Lead	300			10	"	1	"	"	"
Magnesium	12000			10	"	"	"	"	"
Manganese	16000			25	"	50	"	"	"
Nickel	63			1.0	"	1	"	"	"
Potassium	U			250	"	"	"	"	"
Silver	U			1.0	"	"	"	"	"
Sodium	U			200	"	"	"	"	"
Strontium	56			0.20	"	"	"	"	"
Titanium	730			0.50	"	"	"	"	"
Vanadium	130			6.0	"	"	"	"	"
Zinc	170			5.0	"	"	"	"	"

KS

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77 West Jackson Boulevard	Project Number:02TN6	**Reported:**
Chicago IL, 60604	Project Manager:Howard Pham	Nov-04-02 15:26

02TN6S06
0209009-07(Soil)
Sampled: Sep-19-02 11:40
Received: Sep-20-02 11:02

Metals by ICP

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	11000			1200	mg/kg	1	B2I2006	Sep-21-02	Oct-01-02
Barium	140			0.23	"	"	"	"	"
Beryllium	U			0.12	"	"	"	"	"
Cadmium	U			2.3	"	"	"	"	Oct-01-02
Calcium	200000			580	"	50	"	"	Oct-01-02
Chromium	3600			120	"	"	"	"	"
Cobalt	7.4			2.3	"	1	"	"	Oct-01-02
Copper	170			1.2	"	"	"	"	Oct-01-02
Iron	270000			58000	"	50	"	"	Oct-01-02
Lead	520			12	"	1	"	"	"
Magnesium	28000			12	"	"	"	"	Oct-01-02
Manganese	33000			29	"	50	"	"	Oct-01-02
Nickel	140			1.2	"	1	"	"	"
Potassium	U			290	"	"	"	"	Oct-01-02
Silver	U			1.2	"	"	"	"	"
Sodium	U			230	"	"	"	"	"
Strontium	88			0.23	"	"	"	"	"
Titanium	1300			0.58	"	"	"	"	"
Vanadium	310			7.0	"	"	"	"	"
Zinc	140			5.8	"	"	"	"	"

KS
Kathleen Swan, Analyst

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Superfund, US EPA Region 5	Project:Schroud Property, Chicago IL	
77 West Jackson Boulevard	Project Number:02TN6	**Reported:**
Chicago IL, 60604	Project Manager:Howard Pham	Nov-04-02 15:26

02TN6S07
0209009-08(Soil)
Sampled: Sep-19-02 12:05
Received: Sep-20-02 11:02

Metals by ICP

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	13000			1300	mg/kg	1	B2I2006	Sep-21-02	Oct-01-02
Barium	110			0.25	"	"	"	"	"
Beryllium	U			0.13	"	"	"	"	"
Cadmium	U			2.5	"	"	"	"	"
Calcium	190000			630	"	50	"	"	"
Chromium	2900			130	"	"	"	"	"
Cobalt	9.2			2.5	"	1	"	"	"
Copper	220			1.3	"	"	"	"	"
Iron	330000			63000	"	50	"	"	"
Lead	890			13	"	1	"	"	"
Magnesium	29000			13	"	"	"	"	"
Manganese	30000			32	"	50	"	"	"
Nickel	220			1.3	"	1	"	"	"
Potassium	U			320	"	"	"	"	"
Silver	U			1.3	"	"	"	"	"
Sodium	250			250	"	"	"	"	"
Strontium	88			0.25	"	"	"	"	"
Titanium	1400			0.63	"	"	"	"	"
Vanadium	310			7.6	"	"	"	"	"
Zinc	180			6.3	"	"	"	"	"

KS
Kathleen Swan, Analyst

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Superfund, US EPA Region 5	Project: Schroud Property, Chicago IL	
77 West Jackson Boulevard	Project Number: 02TN6	**Reported:**
Chicago IL, 60604	Project Manager: Howard Pham	Nov-05-02 10:55

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
02TN6D03	0209009-01	Soil	Sep-19-02 10:45	Sep-20-02 11:02
02TN6S01	0209009-02	Soil	Sep-19-02 10:05	Sep-20-02 11:02
02TN6S02	0209009-03	Soil	Sep-19-02 10:20	Sep-20-02 11:02
02TN6S03	0209009-04	Soil	Sep-19-02 10:45	Sep-20-02 11:02
02TN6S04	0209009-05	Soil	Sep-19-02 11:05	Sep-20-02 11:02
02TN6S05	0209009-06	Soil	Sep-19-02 11:25	Sep-20-02 11:02
02TN6S06	0209009-07	Soil	Sep-19-02 11:40	Sep-20-02 11:02
02TN6S07	0209009-08	Soil	Sep-19-02 12:05	Sep-20-02 11:02
02TN6S08	0209009-09	Soil	Sep-19-02 12:20	Sep-20-02 11:02
02TN6S09	0209009-10	Soil	Sep-19-02 12:25	Sep-20-02 11:02
02TN6S10	0209009-11	Soil	Sep-19-02 12:35	Sep-20-02 11:02
02TN6S11	0209009-12	Soil	Sep-19-02 12:40	Sep-20-02 11:02

Francis Awanya, Group Leader

Environmental Protection Agency Region 5
Central Regional Laboratory

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Phone:(312)353-8370 Fax:(312)886-2591

Superfund, US EPA Region 5	Project: Schroud Property, Chicago IL	
77 West Jackson Boulevard	Project Number: 02TN6	**Reported:**
Chicago IL, 60604	Project Manager: Howard Pham	Nov-05-02 10:55

Cold Vapor Analyses
US EPA Region 5 Central Regional Laboratory

02TN6D03 (0209009-01) Soil Sampled: Sep-19-02 10:45 Received: Sep-20-02 11:02

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Mercury	0.08		0.04	0.10	mg/kg dry	1	B2J1003	Oct-10-02	Oct-10-02

02TN6S01 (0209009-02) Soil Sampled: Sep-19-02 10:05 Received: Sep-20-02 11:02

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Mercury	0.06		0.04	0.10	mg/kg dry	1	B2J1003	Oct-10-02	Oct-10-02

02TN6S02 (0209009-03) Soil Sampled: Sep-19-02 10:20 Received: Sep-20-02 11:02

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Mercury	U		0.04	0.10	mg/kg dry	1	B2J1003	Oct-10-02	Oct-10-02

02TN6S03 (0209009-04) Soil Sampled: Sep-19-02 10:45 Received: Sep-20-02 11:02

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Mercury	0.05		0.04	0.10	mg/kg dry	1	B2J1003	Oct-10-02	Oct-10-02

02TN6S04 (0209009-05) Soil Sampled: Sep-19-02 11:05 Received: Sep-20-02 11:02

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Mercury	U		0.04	0.10	mg/kg dry	1	B2J1003	Oct-10-02	Oct-10-02

02TN6S05 (0209009-06) Soil Sampled: Sep-19-02 11:25 Received: Sep-20-02 11:02

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Mercury	0.05		0.04	0.10	mg/kg dry	1	B2J1003	Oct-10-02	Oct-10-02

02TN6S06 (0209009-07) Soil Sampled: Sep-19-02 11:40 Received: Sep-20-02 11:02

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Mercury	U		0.04	0.10	mg/kg dry	1	B2J1003	Oct-10-02	Oct-10-02

02TN6S07 (0209009-08) Soil Sampled: Sep-19-02 12:05 Received: Sep-20-02 11:02

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed

Francis Awanya, Group Leader

Environmental Protection Agency Region 5
Central Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Superfund, US EPA Region 5	Project: Schroud Property, Chicago IL	
77 West Jackson Boulevard	Project Number: 02TN6	**Reported:**
Chicago IL, 60604	Project Manager: Howard Pham	Nov-05-02 10:55

Cold Vapor Analyses
US EPA Region 5 Central Regional Laboratory

02TN6S07 (0209009-08) Soil Sampled: Sep-19-02 12:05 Received: Sep-20-02 11:02

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Mercury	U		0.04	0.10	mg/kg dry	1	B2J1003	Oct-10-02	Oct-10-02

02TN6S08 (0209009-09) Soil Sampled: Sep-19-02 12:20 Received: Sep-20-02 11:02

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Mercury	U		0.04	0.10	mg/kg dry	1	B2J1003	Oct-10-02	Oct-10-02

02TN6S09 (0209009-10) Soil Sampled: Sep-19-02 12:25 Received: Sep-20-02 11:02

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Mercury	U		0.04	0.10	mg/kg dry	1	B2J1003	Oct-10-02	Oct-10-02

02TN6S10 (0209009-11) Soil Sampled: Sep-19-02 12:35 Received: Sep-20-02 11:02

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Mercury	U		0.04	0.10	mg/kg dry	1	B2J1003	Oct-10-02	Oct-10-02

02TN6S11 (0209009-12) Soil Sampled: Sep-19-02 12:40 Received: Sep-20-02 11:02

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Mercury	U		0.04	0.10	mg/kg dry	1	B2J1003	Oct-10-02	Oct-10-02

Francis Awanya, Group Leader

Environmental Protection Agency Region 5
Central Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Superfund, US EPA Region 5	Project: Schroud Property, Chicago IL	
77 West Jackson Boulevard	Project Number: 02TN6	**Reported:**
Chicago IL, 60604	Project Manager: Howard Pham	Nov-05-02 10:55

Cold Vapor Analyses - Quality Control
US EPA Region 5 Central Regional Laboratory

Batch B2J1003 - EPA 245.5

Blank (B2J1003-BLK1) **Prepared & Analyzed: Oct-10-02**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Mercury	U		0.04	0.10	mg/kg wet						

LCS (B2J1003-BS1) **Prepared & Analyzed: Oct-10-02**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Mercury	0.184		0.04	0.10	mg/kg wet	0.200		92.0	85.2-109		

Duplicate (B2J1003-DUP1) **Source: 0209009-08** **Prepared & Analyzed: Oct-10-02**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Mercury	U		0.04	0.10	mg/kg dry		U				20

Matrix Spike (B2J1003-MS1) **Source: 0209009-08** **Prepared & Analyzed: Oct-10-02**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Mercury	0.0797		0.04	0.10	mg/kg dry	0.0812	U	98.2	80-120		

Francis Awanya, Group Leader

Environmental Protection Agency Region 5
Central Regional Laboratory

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Superfund, US EPA Region 5	Project: Schroud Property, Chicago IL	
77 West Jackson Boulevard	Project Number: 02TN6	**Reported:**
Chicago IL, 60604	Project Manager: Howard Pham	Nov-05-02 10:55

Notes and Definitions

U	Not Detected
NR	Not Reported

Francis Awanya, Group Leader

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception
			Default Report (not modified)
	Hg Total CVAA	(Soil)	Result calculations based on MDL

Sample, Log and Extraction Comments

0209009-01 Hg Total CVAA	21 DAY PRELIMINARY REPORT/45 DAY COMPLETED
0209009-02 Hg Total CVAA	21 DAY PRELIMINARY REPORT/45 DAY COMPLETED
0209009-03 Hg Total CVAA	21 DAY PRELIMINARY REPORT/45 DAY COMPLETED
0209009-04 Hg Total CVAA	21 DAY PRELIMINARY REPORT/45 DAY COMPLETED
0209009-05 Hg Total CVAA	21 DAY PRELIMINARY REPORT/45 DAY COMPLETED
0209009-06 Hg Total CVAA	21 DAY PRELIMINARY REPORT/45 DAY COMPLETED
0209009-07 Hg Total CVAA	21 DAY PRELIMINARY REPORT/45 DAY COMPLETED
0209009-08 Hg Total CVAA	21 DAY PRELIMINARY REPORT/45 DAY COMPLETED
0209009-09 Hg Total CVAA	21 DAY PRELIMINARY REPORT/45 DAY COMPLETED
0209009-10 Hg Total CVAA	21 DAY PRELIMINARY REPORT/45 DAY COMPLETED
0209009-11 Hg Total CVAA	21 DAY PRELIMINARY REPORT/45 DAY COMPLETED
0209009-12 Hg Total CVAA	21 DAY PRELIMINARY REPORT/45 DAY COMPLETED

Data Set Number:	*0209009*	**Parameter:**	*Mercury*
Facility Name:	*SCHROUD PROPERTY*		
Study Name:	*SCHROUD PROPERTY*		
Date of Narrative:	*11/04/2002*	**Analyst:**	*Francis A. Awanya*
Prepared by:	FAA	**Signature:**	FAA

ANALYSIS CASE NARRATIVE

A total of twelve (12) soil samples, collected for the above study, were received at the Central Regional Laboratory (CRL) for total mercury analysis on 09/20/2002. CRL sample identification numbers were assigned to those samples. The identification numbers are;

02TN6D03, 02TN6S01, 02TN6S02, 02TN6S03, 02TN6S04, 02TN6S05, 02TN6S06, 02TN6S07, 02TN6S08, 02TN6S09, 02TN6S10, and 02TN6S11.

Other pertinent information and dates are provided in the final analysis report.

Samples were originally checked out for metals analysis and kept in a sample storage refrigerator in the Metals Section. They were taken out for mercury analysis and returned to the same refrigerator after aliquots were weighed out for digestion. Analysis of extracted samples were completed within the holding time limit.

SAMPLE ANALYSIS:

Samples were analyzed for mercury using CRL Standard Operating Procedure CRL.SOP AIG043 *(Method reference 245.5, EPA/600/R-93-100)*. Analysis was completed between 10/09/2002 and 10/10/2002.

QUALITY CONTROL:

Analysis results were evaluated using the QC requirements of CRL.SOP AIG043 *(Method reference 245.5, EPA/600/R-93-100)*. Required quality control criteria for the laboratory, method, and system performance audits were evaluated and determined to be within the limits.

SAMPLE RESULTS AND REPORTING:

All sample results are acceptable for use.

Electronic Pathway

r5crl\VOL1\MIN_NUT\FAWANYA\PSAMercury\HgSOIL\0209009

Environmental Protection Agency Region 5

Central Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

WORK ORDER **Printed: 10/10/02 2:03:51PM**

0209009

US EPA Region 5 Central Regional Laboratory

Client: Superfund, US EPA Region 5 **Project Manager:** Marilyn Jupp
Project: Schroud Property, Chicago IL **Project Number:** 02TN6

Report To:

Howard Pham	77 West Jackson Boulevard	Phone: (312) 353-2310
Superfund, US EPA Region 5	Chicago, IL 60604	Fax: (312) 886-6171

Date Due: Nov-05-02 15:00 (45 day TAT)
Received By: William Sargent Date Received: Sep-20-02 11:02
Logged In By: William Sargent Date Logged In: Sep-20-02 12:43

Samples Received at:	2.8°C	21 day preliminary data
All containers intact:	No	
Sample labels/COC agree:	No	
Samples Preserved Properly:	No	
Custody Seals Present:	No	

Analysis	Due	TAT	Expires	Comments
0209009-01 02TN6D03 [Soil] Sampled Sep-19-02 10:45 Central				**21 DAY PRELIMINARY REPORT/45 DAY COMPLETED**
Hg TCLP CVAA	Sep-25-02 12:00	5	Oct-17-02 10:45	
Hg Total CVAA	Nov-05-02 12:00	45	Oct-17-02 10:45	
Solids, Dry Weight	Sep-30-02 12:00	10	Sep-26-02 10:45	
Metals full ICP (S)	Nov-05-02 12:00	45	Mar-18-03 10:45	
%Solids, TS&TVS	Nov-05-02 12:00	45	Sep-26-02 10:45	
Sb GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 10:45	
As GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 10:45	
Se GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 10:45	
Tl GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 10:45	
Metals, TCLP ICP	Oct-21-02 12:00	30	Mar-18-03 10:45	

0209009

US EPA Region 5 Central Regional Laboratory

Client: Superfund, US EPA Region 5 **Project Manager:** Marilyn Jupp
Project: Schroud Property, Chicago IL **Project Number:** 02TN6

Analysis	Due	TAT	Expires	Comments
0209009-02 02TN6S01 [Soil] Sampled Sep-19-02 10:05 Central				**21 DAY PRELIMINARY REPORT/45 DAY COMPLETED**
Hg TCLP CVAA	Sep-25-02 12:00	5	Oct-17-02 10:05	
Hg Total CVAA	Nov-05-02 12:00	45	Oct-17-02 10:05	
Solids, Dry Weight	Sep-30-02 12:00	10	Sep-26-02 10:05	
GFAA SimAA CdPb	Nov-05-02 12:00	45	Mar-18-03 10:05	
GFAA SimAA AsSbSe	Nov-05-02 12:00	45	Mar-18-03 10:05	
GFAA SimAA Tl	Nov-05-02 12:00	45	Mar-18-03 10:05	
Metals full ICP (S)	Nov-05-02 12:00	45	Mar-18-03 10:05	
%Solids, TS&TVS	Nov-05-02 12:00	45	Sep-26-02 10:05	
Sb GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 10:05	
As GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 10:05	
Se GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 10:05	
Tl GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 10:05	
Metals, TCLP ICP	Oct-21-02 12:00	30	Mar-18-03 10:05	
0209009-03 02TN6S02 [Soil] Sampled Sep-19-02 10:20 Central				**21 DAY PRELIMINARY REPORT/45 DAY COMPLETED**
Hg TCLP CVAA	Sep-25-02 12:00	5	Oct-17-02 10:20	
Hg Total CVAA	Nov-05-02 12:00	45	Oct-17-02 10:20	
Solids, Dry Weight	Sep-30-02 12:00	10	Sep-26-02 10:20	
GFAA SimAA CdPb	Nov-05-02 12:00	45	Mar-18-03 10:20	
GFAA SimAA AsSbSe	Nov-05-02 12:00	45	Mar-18-03 10:20	
GFAA SimAA Tl	Nov-05-02 12:00	45	Mar-18-03 10:20	
Metals full ICP (S)	Nov-05-02 12:00	45	Mar-18-03 10:20	
%Solids, TS&TVS	Nov-05-02 12:00	45	Sep-26-02 10:20	
Sb GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 10:20	
As GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 10:20	
Se GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 10:20	
Tl GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 10:20	
Metals, TCLP ICP	Oct-21-02 12:00	30	Mar-18-03 10:20	

0209009

US EPA Region 5 Central Regional Laboratory

Client: Superfund, US EPA Region 5 **Project Manager:** Marilyn Jupp
Project: Schroud Property, Chicago IL **Project Number:** 02TN6

Analysis	Due	TAT	Expires	Comments
0209009-04 02TN6S03 [Soil] Sampled Sep-19-02 10:45 Central				**21 DAY PRELIMINARY REPORT/45 DAY COMPLETED**
Hg TCLP CVAA	Sep-25-02 12:00	5	Oct-17-02 10:45	
Hg Total CVAA	Nov-05-02 12:00	45	Oct-17-02 10:45	
Solids, Dry Weight	Sep-30-02 12:00	10	Sep-26-02 10:45	
GFAA SimAA CdPb	*Nov-05-02 12:00*	*45*	*Mar-18-03 10:45*	
GFAA SimAA AsSbSe	Nov-05-02 12:00	45	Mar-18-03 10:45	
GFAA SimAA Tl	Nov-05-02 12:00	45	Mar-18-03 10:45	
Metals full ICP (S)	Nov-05-02 12:00	45	Mar-18-03 10:45	
%Solids, TS&TVS	Nov-05-02 12:00	45	Sep-26-02 10:45	
Sb GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 10:45	
As GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 10:45	
Se GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 10:45	
Tl GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 10:45	
Metals, TCLP ICP	Oct-21-02 12:00	30	Mar-18-03 10:45	
0209009-05 02TN6S04 [Soil] Sampled Sep-19-02 11:05 Central				**21 DAY PRELIMINARY REPORT/45 DAY COMPLETED**
Hg TCLP CVAA	Sep-25-02 12:00	5	Oct-17-02 11:05	
Hg Total CVAA	Nov-05-02 12:00	45	Oct-17-02 11:05	
Solids, Dry Weight	Sep-30-02 12:00	10	Sep-26-02 11:05	
GFAA SimAA CdPb	Nov-05-02 12:00	45	Mar-18-03 11:05	
GFAA SimAA AsSbSe	Nov-05-02 12:00	45	Mar-18-03 11:05	
GFAA SimAA Tl	Nov-05-02 12:00	45	Mar-18-03 11:05	
Metals full ICP (S)	Nov-05-02 12:00	45	Mar-18-03 11:05	
%Solids, TS&TVS	Nov-05-02 12:00	45	Sep-26-02 11:05	
Sb GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 11:05	
As GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 11:05	
Se GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 11:05	
Tl GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 11:05	
Metals, TCLP ICP	Oct-21-02 12:00	30	Mar-18-03 11:05	

0209009

US EPA Region 5 Central Regional Laboratory

Client: Superfund, US EPA Region 5 Project Manager: Marilyn Jupp
Project: Schroud Property, Chicago IL Project Number: 02TN6

Analysis	Due	TAT	Expires	Comments
0209009-06 02TN6S05 [Soil] Sampled Sep-19-02 11:25 Central				**21 DAY PRELIMINARY REPORT/45 DAY COMPLETED**
Hg TCLP CVAA	Sep-25-02 12:00	5	Oct-17-02 11:25	
Hg Total CVAA	Nov-05-02 12:00	45	Oct-17-02 11:25	
Solids, Dry Weight	Sep-30-02 12:00	10	Sep-26-02 11:25	
GFAA SimAA CdPb	Nov-05-02 12:00	45	Mar-18-03 11:25	
GFAA SimAA AsSbSe	Nov-05-02 12:00	45	Mar-18-03 11:25	
GFAA SimAA Tl	Nov-05-02 12:00	45	Mar-18-03 11:25	
Metals full ICP (S)	Nov-05-02 12:00	45	Mar-18-03 11:25	
%Solids, TS&TVS	Nov-05-02 12:00	45	Sep-26-02 11:25	
Sb GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 11:25	
As GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 11:25	
Se GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 11:25	
Tl GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 11:25	
Metals, TCLP ICP	Oct-21-02 12:00	30	Mar-18-03 11:25	
0209009-07 02TN6S06 [Soil] Sampled Sep-19-02 11:40 Central				**21 DAY PRELIMINARY REPORT/45 DAY COMPLETED**
Hg TCLP CVAA	Sep-25-02 12:00	5	Oct-17-02 11:40	
Hg Total CVAA	Nov-05-02 12:00	45	Oct-17-02 11:40	
Solids, Dry Weight	Sep-30-02 12:00	10	Sep-26-02 11:40	
GFAA SimAA CdPb	Nov-05-02 12:00	45	Mar-18-03 11:40	
GFAA SimAA AsSbSe	Nov-05-02 12:00	45	Mar-18-03 11:40	
GFAA SimAA Tl	Nov-05-02 12:00	45	Mar-18-03 11:40	
Metals full ICP (S)	Nov-05-02 12:00	45	Mar-18-03 11:40	
%Solids, TS&TVS	Nov-05-02 12:00	45	Sep-26-02 11:40	
Sb GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 11:40	
As GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 11:40	
Se GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 11:40	
Tl GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 11:40	
Metals, TCLP ICP	Oct-21-02 12:00	30	Mar-18-03 11:40	

0209009

US EPA Region 5 Central Regional Laboratory

Client: Superfund, US EPA Region 5
Project: Schroud Property, Chicago IL

Project Manager: Marilyn Jupp
Project Number: 02TN6

Analysis	Due	TAT	Expires	Comments
0209009-08 02TN6S07 [Soil] Sampled Sep-19-02 12:05 Central				**21 DAY PRELIMINARY REPORT/45 DAY COMPLETED**
Hg TCLP CVAA	Sep-25-02 12:00	5	Oct-17-02 12:05	
Hg Total CVAA	Nov-05-02 12:00	45	Oct-17-02 12:05	
Solids, Dry Weight	*Sep-30-02 12:00*	*10*	*Sep-26-02 12:05*	
GFAA SimAA CdPb	Nov-05-02 12:00	45	Mar-18-03 12:05	
GFAA SimAA AsSbSe	Nov-05-02 12:00	45	Mar-18-03 12:05	
GFAA SimAA Tl	Nov-05-02 12:00	45	Mar-18-03 12:05	
Metals full ICP (S)	Nov-05-02 12:00	45	Mar-18-03 12:05	
Sb GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 12:05	
As GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 12:05	
Se GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 12:05	
Tl GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 12:05	
%Solids, TS&TVS	Nov-05-02 12:00	45	Sep-26-02 12:05	
Metals, TCLP ICP	Oct-21-02 12:00	30	Mar-18-03 12:05	
0209009-09 02TN6S08 [Soil] Sampled Sep-19-02 12:20 Central				**21 DAY PRELIMINARY REPORT/45 DAY COMPLETED**
Hg TCLP CVAA	Sep-25-02 12:00	5	Oct-17-02 12:20	
Hg Total CVAA	Nov-05-02 12:00	45	Oct-17-02 12:20	
Solids, Dry Weight	Sep-30-02 12:00	10	Sep-26-02 12:20	
GFAA SimAA CdPb	Nov-05-02 12:00	45	Mar-18-03 12:20	
GFAA SimAA AsSbSe	Nov-05-02 12:00	45	Mar-18-03 12:20	
GFAA SimAA Tl	Nov-05-02 12:00	45	Mar-18-03 12:20	
Metals full ICP (S)	Nov-05-02 12:00	45	Mar-18-03 12:20	
%Solids, TS&TVS	Nov-05-02 12:00	45	Sep-26-02 12:20	
Sb GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 12:20	
As GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 12:20	
Se GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 12:20	
Tl GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 12:20	
Metals, TCLP ICP	Oct-21-02 12:00	30	Mar-18-03 12:20	

0209009

US EPA Region 5 Central Regional Laboratory

Client: Superfund, US EPA Region 5 **Project Manager:** Marilyn Jupp
Project: Schroud Property, Chicago IL **Project Number:** 02TN6

Analysis	Due	TAT	Expires	Comments
0209009-10 02TN6S09 [Soil] Sampled Sep-19-02 12:25 Central				**21 DAY PRELIMINARY REPORT/45 DAY COMPLETED**
Hg TCLP CVAA	Sep-25-02 12:00	5	Oct-17-02 12:25	
Hg Total CVAA	Nov-05-02 12:00	45	Oct-17-02 12:25	
Solids, Dry Weight	Sep-30-02 12:00	10	Sep-26-02 12:25	
GFAA SimAA CdPb	Nov-05-02 12:00	45	Mar-18-03 12:25	
GFAA SimAA AsSbSe	Nov-05-02 12:00	45	Mar-18-03 12:25	
Metals full ICP (S)	Nov-05-02 12:00	45	Mar-18-03 12:25	
GFAA SimAA Tl	Nov-05-02 12:00	45	Mar-18-03 12:25	
Sb GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 12:25	
As GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 12:25	
Se GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 12:25	
Tl GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 12:25	
Metals, TCLP ICP	Oct-21-02 12:00	30	Mar-18-03 12:25	
%Solids, TS&TVS	Nov-05-02 12:00	45	Sep-26-02 12:25	
0209009-11 02TN6S10 [Soil] Sampled Sep-19-02 12:35 Central				**21 DAY PRELIMINARY REPORT/45 DAY COMPLETED**
Hg TCLP CVAA	Sep-25-02 12:00	5	Oct-17-02 12:35	
Hg Total CVAA	Nov-05-02 12:00	45	Oct-17-02 12:35	
Solids, Dry Weight	Sep-30-02 12:00	10	Sep-26-02 12:35	
GFAA SimAA CdPb	Nov-05-02 12:00	45	Mar-18-03 12:35	
GFAA SimAA AsSbSe	Nov-05-02 12:00	45	Mar-18-03 12:35	
Metals full ICP (S)	Nov-05-02 12:00	45	Mar-18-03 12:35	
GFAA SimAA Tl	Nov-05-02 12:00	45	Mar-18-03 12:35	
%Solids, TS&TVS	Nov-05-02 12:00	45	Sep-26-02 12:35	
Sb GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 12:35	
As GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 12:35	
Se GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 12:35	
Tl GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 12:35	
Metals, TCLP ICP	Oct-21-02 12:00	30	Mar-18-03 12:35	

0209009

US EPA Region 5 Central Regional Laboratory

Client: Superfund, US EPA Region 5 **Project Manager:** Marilyn Jupp
Project: Schroud Property, Chicago IL **Project Number:** 02TN6

Analysis	Due	TAT	Expires	Comments
0209009-12 02TN6S11 [Soil] Sampled Sep-19-02 12:40 Central				**21 DAY PRELIMINARY REPORT/45 DAY COMPLETED**
Hg TCLP CVAA	Sep-25-02 12:00	5	Oct-17-02 12:40	
Hg Total CVAA	Nov-05-02 12:00	45	Oct-17-02 12:40	
Solids, Dry Weight	Sep-30-02 12:00	10	Sep-26-02 12:40	
GFAA SimAA CdPb	Nov-05-02 12:00	45	Mar-18-03 12:40	
GFAA SimAA AsSbSe	Nov-05-02 12:00	45	Mar-18-03 12:40	
GFAA SimAA Tl	Nov-05-02 12:00	45	Mar-18-03 12:40	
Metals full ICP (S)	Nov-05-02 12:00	45	Mar-18-03 12:40	
%Solids, TS&TVS	Nov-05-02 12:00	45	Sep-26-02 12:40	
Sb GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 12:40	
As GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 12:40	
Se GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 12:40	
Tl GFAA SimAA (S)	Oct-21-02 12:00	30	Mar-18-03 12:40	
Metals, TCLP ICP	Oct-21-02 12:00	30	Mar-18-03 12:40	

Reviewed By Date

Central Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Superfund, US EPA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Schroud Property, Chicago IL Project Number: 02TN6 Project Manager: Howard Pham	Reported: Oct-29-02 14:22

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
02TN6D03	0209009-01	Soil	Sep-19-02 10:45	Sep-20-02 11:02
02TN6S01	0209009-02	Soil	Sep-19-02 10:05	Sep-20-02 11:02
02TN6S02	0209009-03	Soil	Sep-19-02 10:20	Sep-20-02 11:02
02TN6S03	0209009-04	Soil	Sep-19-02 10:45	Sep-20-02 11:02
02TN6S04	0209009-05	Soil	Sep-19-02 11:05	Sep-20-02 11:02
02TN6S05	0209009-06	Soil	Sep-19-02 11:25	Sep-20-02 11:02
02TN6S06	0209009-07	Soil	Sep-19-02 11:40	Sep-20-02 11:02
02TN6S07	0209009-08	Soil	Sep-19-02 12:05	Sep-20-02 11:02
02TN6S08	0209009-09	Soil	Sep-19-02 12:20	Sep-20-02 11:02
02TN6S09	0209009-10	Soil	Sep-19-02 12:25	Sep-20-02 11:02
02TN6S10	0209009-11	Soil	Sep-19-02 12:35	Sep-20-02 11:02
02TN6S11	0209009-12	Soil	Sep-19-02 12:40	Sep-20-02 11:02

John Morris, Group Leader 29 Oct 02

Report Name: 0209009

Central Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Superfund, US EPA Region 5	Project: Schroud Property, Chicago IL	
77 West Jackson Boulevard	Project Number: 02TN6	Reported:
Chicago IL, 60604	Project Manager: Howard Pham	Oct-29-02 14:22

Metals by ICP, TCLP Extracts

US EPA Region 5 Central Regional Laboratory

02TN6D03 (0209009-01) Soil Sampled: Sep-19-02 10:45 Received: Sep-20-02 11:02

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	U			0.500	mg/L	1	B2J0801	Oct-09-02	Oct-11-02
Barium	0.714			0.020	"	"	"	"	"
Cadmium	0.019			0.010	"	"	"	"	"
Chromium	U			0.030	"	"	"	"	"
Lead	U			0.100	"	"	"	"	"
Selenium	U			0.300	"	"	"	"	"
Silver	U			0.020	"	"	"	"	"

02TN6S01 (0209009-02) Soil Sampled: Sep-19-02 10:05 Received: Sep-20-02 11:02

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	U			0.500	mg/L	1	B2J0801	Oct-09-02	Oct-11-02
Barium	0.797			0.020	"	"	"	"	Oct-11-02
Cadmium	0.011			0.010	"	"	"	"	Oct-11-02
Chromium	U			0.030	"	"	"	"	"
Lead	U			0.100	"	"	"	"	"
Selenium	U			0.300	"	"	"	"	"
Silver	U			0.020	"	"	"	"	"

02TN6S02 (0209009-03) Soil Sampled: Sep-19-02 10:20 Received: Sep-20-02 11:02

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	U			0.500	mg/L	1	B2J0801	Oct-09-02	Oct-11-02
Barium	0.516			0.020	"	"	"	"	Oct-11-02
Cadmium	U			0.010	"	"	"	"	Oct-11-02
Chromium	U			0.030	"	"	"	"	"
Lead	U			0.100	"	"	"	"	"
Selenium	U			0.300	"	"	"	"	"
Silver	U			0.020	"	"	"	"	Oct-11-02

John Morris 29 Oct 02

John Morris, Group Leader

Central Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Superfund, US EPA Region 5	Project: Schroud Property, Chicago IL	
77 West Jackson Boulevard	Project Number: 02TN6	Reported:
Chicago IL, 60604	Project Manager: Howard Pham	Oct-29-02 14:22

Metals by ICP, TCLP Extracts

US EPA Region 5 Central Regional Laboratory

02TN6S03 (0209009-04) Soil Sampled: Sep-19-02 10:45 Received: Sep-20-02 11:02

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	U			0.500	mg/L	1	B2J0801	Oct-09-02	Oct-11-02
Barium	0.683			0.020	"	"	"	"	Oct-11-02
Cadmium	0.021			0.010	"	"	"	"	Oct-11-02
Chromium	U			0.030	"	"	"	"	"
Lead	U			0.100	"	"	"	"	"
Selenium	U			0.300	"	"	"	"	"
Silver	U			0.020	"	"	"	"	"

02TN6S04 (0209009-05) Soil Sampled: Sep-19-02 11:05 Received: Sep-20-02 11:02

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	U			0.500	mg/L	1	B2J0801	Oct-09-02	Oct-11-02
Barium	0.789			0.020	"	"	"	"	Oct-11-02
Cadmium	U			0.010	"	"	"	"	Oct-11-02
Chromium	U			0.030	"	"	"	"	"
Lead	U			0.100	"	"	"	"	"
Selenium	U			0.300	"	"	"	"	"
Silver	U			0.020	"	"	"	"	Oct-11-02

02TN6S05 (0209009-06) Soil Sampled: Sep-19-02 11:25 Received: Sep-20-02 11:02

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	U			0.500	mg/L	1	B2J0801	Oct-09-02	Oct-11-02
Barium	0.593			0.020	"	"	"	"	"
Cadmium	U			0.010	"	"	"	"	"
Chromium	U			0.030	"	"	"	"	"
Lead	U			0.100	"	"	"	"	"
Selenium	U			0.300	"	"	"	"	"
Silver	U			0.020	"	"	"	"	"

John Morris, Group Leader

Central Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Superfund, US EPA Region 5	Project: Schroud Property, Chicago IL	
77 West Jackson Boulevard	Project Number: 02TN6	Reported:
Chicago IL, 60604	Project Manager: Howard Pham	Oct-29-02 14:22

Metals by ICP, TCLP Extracts

US EPA Region 5 Central Regional Laboratory

02TN6S06 (0209009-07) Soil Sampled: Sep-19-02 11:40 Received: Sep-20-02 11:02

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	U			0.500	mg/L	1	B2J0801	Oct-09-02	Oct-11-02
Barium	0.749			0.020	"	"	"	"	Oct-11-02
Cadmium	U			0.010	"	"	"	"	Oct-11-02
Chromium	U			0.030	"	"	"	"	"
Lead	U			0.100	"	"	"	"	"
Selenium	U			0.300	"	"	"	"	"
Silver	U			0.020	"	"	"	"	"

02TN6S07 (0209009-08) Soil Sampled: Sep-19-02 12:05 Received: Sep-20-02 11:02

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	U			0.500	mg/L	1	B2J0801	Oct-09-02	Oct-11-02
Barium	0.600			0.020	"	"	"	"	Oct-11-02
Cadmium	U			0.010	"	"	"	"	Oct-11-02
Chromium	U			0.030	"	"	"	"	"
Lead	U			0.100	"	"	"	"	"
Selenium	U			0.300	"	"	"	"	"
Silver	U			0.020	"	"	"	"	Oct-11-02

02TN6S08 (0209009-09) Soil Sampled: Sep-19-02 12:20 Received: Sep-20-02 11:02

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	U			0.500	mg/L	1	B2J0801	Oct-09-02	Oct-11-02
Barium	0.219			0.020	"	"	"	"	Oct-11-02
Cadmium	U			0.010	"	"	"	"	Oct-11-02
Chromium	U			0.030	"	"	"	"	"
Lead	U			0.100	"	"	"	"	"
Selenium	U			0.300	"	"	"	"	"
Silver	U			0.020	"	"	"	"	"

John Morris, Group Leader 29 Oct 02

Report Name: 0209009

Environmental Protection Agency Region 5
Central Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Superfund, US EPA Region 5	Project:Schroud Property, Chicago IL	
77 West Jackson Boulevard	Project Number:02TN6	**Reported:**
Chicago IL, 60604	Project Manager:Howard Pham	Nov-04-02 15:26

02TN6S08
0209009-09(Soil)
Sampled: Sep-19-02 12:20
Received: Sep-20-02 11:02

Metals by ICP

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	**16000**			1000	mg/kg	1	B2I2006	Sep-21-02	Oct-01-02
Barium	**52**			0.20	"	"	"	"	"
Beryllium	**U**			0.10	"	"	"	"	"
Cadmium	**U**			2.0	"	"	"	"	"
Calcium	**200000**			500	"	50	"	"	"
Chromium	**2500**			100	"	"	"	"	"
Cobalt	**5.2**			2.0	"	1	"	"	"
Copper	**96**			1.0	"	"	"	"	"
Iron	**230000**			50000	"	50	"	"	"
Lead	**720**			10	"	1	"	"	"
Magnesium	**33000**			10	"	"	"	"	"
Manganese	**23000**			25	"	50	"	"	"
Nickel	**230**			1.0	"	1	"	"	"
Potassium	**U**			250	"	"	"	"	"
Silver	**U**			1.0	"	"	"	"	"
Sodium	**U**			200	"	"	"	"	"
Strontium	**93**			0.20	"	"	"	"	"
Titanium	**1200**			0.50	"	"	"	"	"
Vanadium	**280**			6.0	"	"	"	"	"
Zinc	**220**			5.0	"	"	"	"	"

KS
Kathleen Swan, Analyst

Environmental Protection Agency Region 5
Central Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Superfund, US EPA Region 5	Project:Schroud Property, Chicago IL	
77 West Jackson Boulevard	Project Number:02TN6	**Reported:**
Chicago IL, 60604	Project Manager:Howard Pham	Nov-04-02 15:26

02TN6S09
0209009-10(Soil)
Sampled: Sep-19-02 12:25
Received: Sep-20-02 11:02

Metals by ICP

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	11000			1000	mg/kg	1	B2I2006	Sep-21-02	Oct-01-02
Barium	150			0.20	"	"	"	"	"
Beryllium	U			0.10	"	"	"	"	"
Cadmium	U			2.0	"	"	"	"	"
Calcium	180000			500	"	50	"	"	"
Chromium	2800			100	"	"	"	"	"
Cobalt	7.2			2.0	"	1	"	"	"
Copper	150			1.0	"	"	"	"	"
Iron	230000			50000	"	50	"	"	"
Lead	560			10	"	1	"	"	"
Magnesium	27000			10	"	"	"	"	"
Manganese	28000			25	"	50	"	"	"
Nickel	220			1.0	"	1	"	"	"
Potassium	U			250	"	"	"	"	"
Silver	U			1.0	"	"	"	"	"
Sodium	200			200	"	"	"	"	"
Strontium	96			0.20	"	"	"	"	"
Titanium	1100			0.50	"	"	"	"	"
Vanadium	270			6.0	"	"	"	"	"
Zinc	130			5.0	"	"	"	"	"

KS
Kathleen Swan, Analyst

Environmental Protection Agency Region 5
Central Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Superfund, US EPA Region 5	Project:Schroud Property, Chicago IL	
77 West Jackson Boulevard	Project Number:02TN6	**Reported:**
Chicago IL, 60604	Project Manager:Howard Pham	Nov-04-02 15:26

02TN6S10
0209009-11(Soil)
Sampled: Sep-19-02 12:35
Received: Sep-20-02 11:02

Metals by ICP

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	**13000**			900	mg/kg	1	B2I2006	Sep-21-02	Oct-01-02
Barium	**150**			0.18	"	"	"	"	"
Beryllium	**U**			0.090	"	"	"	"	"
Cadmium	**U**			1.8	"	"	"	"	Oct-01-02
Calcium	**230000**			450	"	50	"	"	Oct-01-02
Chromium	**3100**			90	"	"	"	"	"
Cobalt	**4.4**			1.8	"	1	"	"	Oct-01-02
Copper	**72**			0.90	"	"	"	"	Oct-01-02
Iron	**170000**			45000	"	50	"	"	Oct-01-02
Lead	**820**			9.0	"	1	"	"	"
Magnesium	***37000***			*9.0*	"	"	"	"	Oct-01-02
Manganese	**34000**			22	"	50	"	"	Oct-01-02
Nickel	**230**			0.90	"	1	"	"	"
Potassium	**360**			220	"	"	"	"	Oct-01-02
Silver	**2.3**			0.90	"	"	"	"	"
Sodium	**260**			180	"	"	"	"	"
Strontium	**110**			0.18	"	"	"	"	"
Titanium	**1400**			0.45	"	"	"	"	"
Vanadium	**360**			5.4	"	"	"	"	"
Zinc	**92**			4.5	"	"	"	"	"

KS
Kathleen Swan, Analyst

Environmental Protection Agency Region 5
Central Regional Laboratory

536 South Clark Street, Chicago, IL 60605
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Superfund, US EPA Region 5	Project:Schroud Property, Chicago IL	
77 West Jackson Boulevard	Project Number:02TN6	**Reported:**
Chicago IL, 60604	Project Manager:Howard Pham	Nov-04-02 15:26

02TN6S11
0209009-12(Soil)
Sampled: Sep-19-02 12:40
Received: Sep-20-02 11:02

Metals by ICP

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Barium	140			0.28	mg/kg	1	B2I2006	Sep-21-02	Oct-01-02
Beryllium	U			0.14	"	"	"	"	"
Cadmium	U			2.8	"	"	"	"	"
Calcium	190000			700	"	50	"	"	Oct-01-02
Chromium	3200			140	"	"	"	"	Oct-01-02
Cobalt	5.7			2.8	"	1	"	"	"
Copper	130			1.4	"	"	"	"	"
Iron	230000			70000	"	50	"	"	"
Lead	640			14	"	1	"	"	"
Magnesium	30000			14	"	"	"	"	"
Manganese	28000			35	"	50	"	"	"
Nickel	130			1.4	"	1	"	"	"
Potassium	U			350	"	"	"	"	"
Silver	U			1.4	"	"	"	"	"
Sodium	290			280	"	"	"	"	"
Strontium	95			0.28	"	"	"	"	"
Titanium	1100			0.70	"	"	"	"	"
Vanadium	300			8.4	"	"	"	"	"
Zinc	160			7.0	"	"	"	"	"

KS
Kathleen Swan, Analyst

Environmental Protection Agency Region 5
Central Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Superfund, US EPA Region 5	Project:Schroud Property, Chicago IL	
77 West Jackson Boulevard	Project Number:02TN6	**Reported:**
Chicago IL, 60604	Project Manager:Howard Pham	Nov-04-02 15:26

Notes and Definitions

U	Not Detected
NR	Not Reported

KS
Kathleen Swan, Analyst

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5 CENTRAL REGIONAL LABORATORY
536 SOUTH CLARK STREET
CHICAGO, ILLINOIS 60605

Date: 11/5/02

Subject: Review of Region 5 Data for Schroud Property, Chicago IL

From: Francis Awanya, Group Leader FAA
Region 5 Central Regional Laboratory

To: Superfund, US EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604

Attached are Results for: Schroud Property, Chicago IL

Analyses included in this report:

Hg Total CVAA

Sylvia Griffin NOV 05 2002

Data Management Coordinator and Date Received

Date Transmitted: NOV 05 2002 / / /

Please have the U.S. EPA Project Manager/Officer call the CRL Sample Coordinator at 3-7444 for any comments or questions.

Please sign and date this form below and return it with any comments to:

Sylvia Griffin
Data Management Coordinator
Region 5 Central Regional Laboratory
ML-10C

/ / /

Received by and Date

Comments:

Central Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Superfund, US EPA Region 5	Project: Schroud Property, Chicago IL	
77 West Jackson Boulevard	Project Number: 02TN6	Reported:
Chicago IL, 60604	Project Manager: Howard Pham	Oct-29-02 14:22

Metals by ICP, TCLP Extracts

US EPA Region 5 Central Regional Laboratory

02TN6S09 (0209009-10) Soil Sampled: Sep-19-02 12:25 Received: Sep-20-02 11:02

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	U			0.500	mg/L	1	B2J0801	Oct-09-02	Oct-11-02
Barium	0.782			0.020	"	"	"	"	Oct-11-02
Cadmium	U			0.010	"	"	"	"	Oct-11-02
Chromium	U			0.030	"	"	"	"	"
Lead	U			0.100	"	"	"	"	"
Selenium	U			0.300	"	"	"	"	"
Silver	U			0.020	"	"	"	"	"

02TN6S10 (0209009-11) Soil Sampled: Sep-19-02 12:35 Received: Sep-20-02 11:02

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	U			0.500	mg/L	1	B2J0801	Oct-09-02	Oct-11-02
Barium	0.546			0.020	"	"	"	"	Oct-11-02
Cadmium	U			0.010	"	"	"	"	Oct-11-02
Chromium	U			0.030	"	"	"	"	"
Lead	U			0.100	"	"	"	"	"
Selenium	U			0.300	"	"	"	"	"
Silver	U			0.020	"	"	"	"	Oct-11-02

02TN6S11 (0209009-12) Soil Sampled: Sep-19-02 12:40 Received: Sep-20-02 11:02

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	U			0.500	mg/L	1	B2J0801	Oct-09-02	Oct-11-02
Barium	0.783			0.020	"	"	"	"	Oct-11-02
Cadmium	U			0.010	"	"	"	"	Oct-11-02
Chromium	U			0.030	"	"	"	"	"
Lead	U			0.100	"	"	"	"	"
Selenium	U			0.300	"	"	"	"	"
Silver	U			0.020	"	"	"	"	"

John V. Morris 29 Oct 02

John Morris, Group Leader

Report Name: 0209009

Central Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Superfund, US EPA Region 5 77 West Jackson Boulevard Chicago Il., 60604	Project: Schroud Property, Chicago IL Project Number: 02TN6 Project Manager: Howard Pham	Reported: Oct-29-02 14:22

Notes and Definitions

U	Not Detected
NR	Not Reported

29 Oct 02

John Morris, Group Leader

Date: 29 October 2002
Analyst: John V. Morris
Work Order Number: 0209009
Facility Name: Schroud Property
Analyte: Arsenic, Barium, Cadmium, Chromium, Lead, Selenium and Silver in TCLP Extracts by ICP

Narrative for the Analysis of Arsenic, Barium, Cadmium, Chromium, Lead, Selenium and Silver in TCLP Extracts of Solid Samples in Work Order 0209009

On 20 September 2002, twelve (12) soil samples were received at CRL for analysis of arsenic, barium, cadmium, chromium, lead, selenium and silver when extracted using TCLP (SW-846 method 1311). The samples had been collected on 19 September 2002. None of the samples exceed the action levels given in 40 CFR part 261.24 for the subject metals.

The samples were extracted by J.V. Morris with assistance from G. Deng on 26-27 September 2002. Copies of the extraction bench sheets are included in this package. Sample 0209009-09 required particle size reduction according to section 7.1.3 of Method 1311. This was accomplished using mortar and pestle. All samples used extraction fluid #2. All samples had no obvious liquid component, so were treated as being 100% solids. All samples were preserved with nitric acid after filtration on 27 September 2002.

On 9 October 2002, the extracts and blank were digested at 5 mL to 50 mL dilution using Method 200.2 on the Hot Block (CRL Method Metals025). The digests were brought to volume on 10 October 2002. The digestion bench sheet number was B2J0801. The analysis was performed within the holding time of 180 days from extraction.

The analysis was performed on 11 October 2002 using method Metals003, using the Perkin-Elmer 3300DV ICP. The analysis was stopped and restarted after the first series of instrument check standards because there was an apparent problem with one of the calibration standards. After repreparing Cal1 and LCM1, the analysis was restarted. For the seven metals reported, there was one instrument blank result outside the limits of ± the MDL. For the fifth and final instrument blank (LCB), lead was more negative than the MDL (-0.0043 mg/L), but none of the sample results, if adjusted for this blank, would reach the reporting limit. Similarly, the digestion blank (LRB; B2J0801-BLK1) was -0.0023 mg/L, just below -MDL for lead. Lead is not flagged "L", as there is no chance of a reportable result. The extract blank was slightly above the MDL for arsenic and barium, but this MDL is not determined with the TCLP extraction. The report level check (RLC) was outside the 100 ± 20% limit for chromium (142%), but as no chromium was at reportable concentration, no flag was used. The duplicate for sample 0209009-01 was outside the limit of ± MDL for duplicate difference (applied close to the MDL) for silver and lead, as was the duplicate for chromium for the duplicate of 0209009-08. The absolute differences noted were not enough to push the results to reportable levels, so the data were not flagged. All instrument check standards (LCMs) were in control (100 ± 10%). The matrix spike was recovered within 100 ± 15%. The spectral interference check solutions showed some non-

Date: 29 October 2002
Analyst: John V. Morris
Work Order Number: 0209009
Facility Name: Schroud Property
Analyte: Arsenic, Barium, Cadmium, Chromium, Lead, Selenium and Silver in TCLP Extracts by ICP

zero readings with absolute value greater than the reporting limit, but none were significant.

The 10-fold dilution in the preparation is not reflected in the entry under dilution in the report, but the reporting limits in the report do have that dilution accounted for. The reporting limit for arsenic was raised to 0.5 mg/L because false positives were seen for this analyte, based on the results of total digestion, and assuming 100% extraction efficiency in the TCLP. An e-mail from Lisa Graczyk of Tetra-Tech in response to my telephone inquiry on this point is attached to this narrative.

The field duplication was good (< ± 10%) for 0209012-01 (field duplicate for 0209012-04).

All analytical results files, sample information files and reformat files for ICP analysis can be found on the R5CRL data server using the following path:
h:\r5crl\vol1\EPA-metals\jvmorris\0209009\3300dv\

The narrative and QC summary spreadsheets can be found on the R5CRL data server using the following path: h:\r5crl\vol1\EPA-metals\jvmorris\0209009\reports\

USEPA Contract Laboratory Program
Generic Chain of Custody

Reference Case: 02TN6
Client No:

R

Region: 5	Date Shipped:	**Chain of Custody Record**	Sampler Signature:
Project Code:	Carrier Name: Hand Delivered	Relinquished By (Date / Time)	Received By (Date / Time)
Account Code:	Airbill:	1 [signature] 9/20/02 1050	1 [signature] 9/20/02 1150
CERCLIS ID:	Shipped to: USEPA Central Regional Lab, 536 South Clark Street, Room 1029, Chicago IL 60605, (312) 353-9083	2	
Spill ID:		3	
Site Name/State: Schroud Property/IL		4	
Project Leader: Raghu Nagam			
Action:			
Sampling Co: Tetra Tech			

SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	SAMPLE No.	QC Type
D03	Soil/Sediment/ Raghu Nagam	M/G	TAL Metals (21), TCLP RCRA (21)	5246968 (Ice Only), 5246969 (Ice Only) (2)	D03	S: 9/19/2002 10:45		Field Duplicate
S01	Soil/Sediment/ Raghu Nagam	M/G	TAL Metals (21), TCLP RCRA (21)	5246959 (Ice Only), 5246960 (Ice Only) (2)	S01	S: 9/19/2002 10:05		--
S02	Soil/Sediment/ Raghu Nagam	M/G	TAL Metals (21), TCLP RCRA (21)	5246962 (Ice Only), 5246963 (Ice Only) (2)	S02	S: 9/19/2002 10:20		--
S03	Soil/Sediment/ Raghu Nagam	M/G	TAL Metals (21), TCLP RCRA (21)	5246965 (Ice Only), 5246966 (Ice Only) (2)	S03	S: 9/19/2002 10:45		--
S04	Soil/Sediment/ Raghu Nagam	M/G	TAL Metals (21), TCLP RCRA (21)	5246971 (Ice Only), 5246972 (Ice Only) (2)	S04	S: 9/19/2002 11:05		--
S05	Soil/Sediment/ Raghu Nagam	M/G	TAL Metals (21), TCLP RCRA (21)	5246974 (Ice Only), 5246975 (Ice Only) (2)	S05	S: 9/19/2002 11:25		--
S06	Soil/Sediment/ Raghu Nagam	M/G	TAL Metals (21), TCLP RCRA (21)	5246977 (Ice Only), 5246978 (Ice Only) (2)	S06	S: 9/19/2002 11:40		--
S07	Soil/Sediment/ Raghu Nagam	M/G	TAL Metals (21), TCLP RCRA (21)	5246985 (Ice Only), 5246986 (Ice Only), 5246987 (Ice Only), 5246988 (Ice Only), 5246989 (Ice Only), 5246990 (Ice Only) (6)	S07	S: 9/19/2002 12:05		--
S08	Soil/Sediment/ Raghu Nagam	M/G	TAL Metals (21), TCLP RCRA (21)	5246992 (Ice Only), 5246993 (Ice Only) (2)	S08	S: 9/19/2002 12:20		--

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC: S07	Additional Sampler Signature(s):	Chain of Custody Seal Number:
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced?_____
TAL Metals = TAL Metals, TCLP RCRA = TCLP RCRA Metals			

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USEPA Contract Laboratory Program
Generic Chain of Custody

Reference Case: 02TN6
Client No:
R

Region: 5 Project Code: Account Code: CERCLIS ID: Spill ID: Site Name/State: Schroud Property/IL Project Leader: Raghu Nagam Action: Sampling Co: Tetra Tech	Date Shipped: Carrier Name: Hand Delivered Airbill: Shipped to: USEPA Central Regional Lab 536 South Clark Street, Room 1029 Chicago IL 60605 (312) 353-9083	**Chain of Custody Record**	Sampler Signature:
		Relinquished By (Date / Time)	Received By (Date / Time)
		1 [signature] 9/20/02	[signature] 9/20/02 11:42
		2	
		3	
		4	

SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	SAMPLE No.	QC Type
S09	Soil/Sediment/ Raghu Nagam	M/G	TAL Metals (21), TCLP RCRA (21)	5246995 (Ice Only), 5246996 (Ice Only) (2)	S09	S: 9/19/2002 12:25		--
S10	Soil/Sediment/ Raghu Nagam	M/G	TAL Metals (21), TCLP RCRA (21)	5246998 (Ice Only), 5246999 (Ice Only) (2)	S10	S: 9/19/2002 12:35		--
S11	Soil/Sediment/ Raghu Nagam	M/G	TAL Metals (21), TCLP RCRA (21)	5247001 (Ice Only), 5247002 (Ice Only) (2)	S11	S: 9/19/2002 12:40		--

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC: S07	Additional Sampler Signature(s):	Chain of Custody Seal Number:
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced?_____
TAL Metals = TAL Metals, TCLP RCRA = TCLP RCRA Metals			

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USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Case No: 02TN6
DAS No:
R

Region: 5 **Project Code:** **Account Code:** **CERCLIS ID:** **Spill ID:** **Site Name/State:** Schroud Property/IL **Project Leader:** Raghu Nagam **Action:** **Sampling Co:** Tetra Tech	**Date Shipped:** **Carrier Name:** Hand Delivered **Airbill:** **Shipped to:** USEPA Central Regional Lab 536 South Clark Street, Room 1029 Chicago IL 60605 (312) 353-9083	**Chain of Custody Record**	**Sampler Signature:**
		Relinquished By (Date / Time)	**Received By (Date / Time)**
		1 [signature] 9/20/02 1130	[signature] 9/20/02 1130
		2	
		3	
		4	

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	QC Type
D03	Soil/Sediment/ Raghu Nagam	M/G	Hg (21)	5246967 (Ice Only) (1)	D03	S: 9/19/2002 10:45		Field Duplicate
S01	Soil/Sediment/ Raghu Nagam	M/G	Hg (21)	5246958 (Ice Only) (1)	S01	S: 9/19/2002 10:05		--
S02	Soil/Sediment/ Raghu Nagam	M/G	Hg (21)	5246961 (Ice Only) (1)	S02	S: 9/19/2002 10:20		--
S03	Soil/Sediment/ Raghu Nagam	M/G	Hg (21)	5246964 (Ice Only) (1)	S03	S: 9/19/2002 10:45		--
S04	Soil/Sediment/ Raghu Nagam	M/G	Hg (21)	5246970 (Ice Only) (1)	S04	S: 9/19/2002 11:05		--
S05	Soil/Sediment/ Raghu Nagam	M/G	Hg (21)	5246973 (Ice Only) (1)	S05	S: 9/19/2002 11:25		--
S06	Soil/Sediment/ Raghu Nagam	M/G	Hg (21)	5246976 (Ice Only) (1)	S06	S: 9/19/2002 11:40		--
S07	Soil/Sediment/ Raghu Nagam	M/G	Hg (21)	5246982 (Ice Only), 5246983 (Ice Only), 5246984 (Ice Only) (3)	S07	S: 9/19/2002 12:05		--
S08	Soil/Sediment/ Raghu Nagam	M/G	Hg (21)	5246991 (Ice Only) (1)	S08	S: 9/19/2002 12:20		--
S09	Soil/Sediment/ Raghu Nagam	M/G	Hg (21)	5246994 (Ice Only) (1)	S09	S: 9/19/2002 12:25		--

Shipment for Case Complete? N	**Sample(s) to be used for laboratory QC:** S07	**Additional Sampler Signature(s):**	**Chain of Custody Seal Number:**
Analysis Key: Hg = Mercury	**Concentration:** L = Low, M = Low/Medium, H = High	**Type/Designate:** Composite = C, Grab = G	**Shipment Iced?**_____

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USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Case No: 02TN6
DAS No:
R

Region: 5 Project Code: Account Code: CERCLIS ID: Spill ID: Site Name/State: Schroud Property/IL Project Leader: Raghu Nagam Action: Sampling Co: Tetra Tech	Date Shipped: Carrier Name: Hand Delivered Airbill: Shipped to: USEPA Central Regional Lab 536 South Clark Street, Room 1029 Chicago IL 60605 (312) 353-9083	**Chain of Custody Record** 1 Relinquished By (Date / Time): [illegible] 9/20/02 11:00 2 3 4	Sampler Signature: Received By (Date / Time): [illegible] 9/20/02 11:00

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	QC Type
S10	Soil/Sediment/ Raghu Nagam	M/G	Hg (21)	5246997 (Ice Only) (1)	S10	S: 9/19/2002 12:35		--
S11	Soil/Sediment/ Raghu Nagam	M/G	Hg (21)	5247000 (Ice Only) (1)	S11	S: 9/19/2002 12:40		--

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC: S07	Additional Sampler Signature(s):	Chain of Custody Seal Number:
Analysis Key: Hg = Mercury	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced?_____

TR Number: 5-360180288-091902-0001

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APPENDIX C

DEVELOPMENT OF RECEPTOR-SPECIFIC LEAD REMEDIATION OBJECTIVES AND RISK ASSESSMENT FOR AREA 5 OF THE SCHROUD PROPERTY SITE CHICAGO, COOK COUNTY, ILLINOIS

(15 Sheets)

ENCLOSURE

DEVELOPMENT OF RECEPTOR-SPECIFIC LEAD REMEDIATION OBJECTIVES AND RISK ASSESSMENT FOR AREA 5 OF THE SCHROUD PROPERTY SITE, CHICAGO, COOK COUNTY, ILLINOIS

(15 Pages)

DEVELOPMENT OF RECEPTOR-SPECIFIC LEAD REMEDIATION OBJECTIVES AND RISK ASSESSMENT FOR AREA 5 OF THE SCHROUD PROPERTY SITE, CHICAGO, COOK COUNTY, ILLINOIS

1.0 INTRODUCTION

The Schroud property consists of about 255 acres of land located between East 122nd Street, East 130th Street, Chicago & Western Indiana Railroad tracks, and Penna Railroad tracks in southeast Chicago, Illinois. Carnow, Conibear & Associates, Ltd (CCA) completed a Phase I environmental site assessment (ESA) for the Schroud property in June 1999, for the City of Chicago Department of Environment (CDOE) (CCA 1999).

Because of the size of the Schroud property, CCA divided the property into five areas (CCA 1999). Area 5 consists of approximately 55 acres in the southeast part of the Schroud property and is bounded by Wolf Creek to the north, the Penna Railroad tracks and Avenue O to the east, 130th Street to the south, and South Chicago and Southern Railroad tracks to the west. Area 5 was used as a landfill for inorganic materials from 1971 to 1977; prior to the landfilling activities, steel mill slag was disposed of in Area 5. Based on the Phase I ESA results, CCA recommended a subsurface soil and groundwater investigation for Area 5 (CCA 1999). On June 8, 2002, CDOE referred Area 5 to the U.S. Environmental Protection Agency (U.S. EPA) Region 5 Emergency Response Branch for a time-critical removal assessment pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CDOE was "concerned about the potential health hazards to nearby residences and the possible environmental impact to Wolf Creek which is a major tributary to Wolf Lake" (CDOE 2002).

At the request of U.S. EPA Region 5, TN & Associates (TN&A), a subcontractor for the Tetra Tech EM Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START), conducted site assessment activities for Area 5 and prepared a site assessment report (TN&A 2002). It should be noted that the site assessment report prepared by TN&A refers to Area 5 as the Schroud property; however, TN&A's site assessment activities were limited to Area 5.

As part of TN&A's site assessment activities, 12 soil samples were collected from various flue and slag piles (6 total samples) and from surface soil at various locations (5 samples and one duplicate sample). The soil samples were analyzed for target analyte list (TAL) metals and toxicity characteristic leaching procedure (TCLP) Resource Conservation and Recovery Act

(RCRA) metals. The TCLP analytical results were compared to TCLP regulatory limits (Title 40, *Code of Federal Regulations* [CFR] Section 261.24, Table 1). None of the TCLP analytical results exceeded TCLP regulatory limits.

The potential exposure threat to human receptors associated with direct contact with lead present in surficial material (0 to 6 inches below ground surface [bgs] present as either piled material or surface soil) was initially evaluated by comparing the total concentration of lead measured in each soil sample to the Illinois Environmental Protection Agency (Illinois EPA) Tier 1 soil remediation objectives (RO) for industrial and commercial properties. The default Tier 1 soil ROs for industrial-commercial and construction workers were developed as part of Illinois EPA's "Tiered Approach to Corrective Action Objectives" (TACO) regulations (Illinois Pollution Control Board [IPCB] 2002). The results of the comparison showed that lead was measured at concentrations exceeding the Tier 1 industrial-commercial and construction worker soil ROs of 400 milligrams per kilogram (mg/kg) nine of twelve soil samples.

In order to more completely assess the potential direct contact exposure threat posed by lead in surface soil at Area 5, site- and receptor-specific remediation objectives (RO) for lead were developed and the concentrations of lead measured in Area 5 soil compared to these ROs. The rest of this document is organized as follows: Section 2.0 presents the general methodology and parameter values used to develop receptor-specific lead ROs for Area 5; Section 3.0 presents the receptor-specific lead ROs developed; and Section 4.0 presents a comparison of site-specific lead concentrations in soil to each of the receptor-specific lead ROs. Section 5.0 presents a summary and conclusions. References used to prepare this document are presented immediately after the text.

2.0 LEAD REMEDIATION OBJECTIVE METHODOLOGY

Site- and receptor-specific lead ROs were calculated based on the assumption that Area 5 will be developed for industrial purposes. Therefore, the lead ROs are based on potential exposure of adult workers to lead in soil at Area 5. Two scenarios involving industrial/commercial and construction workers were evaluated. It was assumed that the industrial/commercial workers would engage in activities requiring minimum direct contact with soil and little or no intrusive activity. It was also assumed that the construction workers would engage in construction activities (including installation and repair of utilities) requiring extensive intrusive activity.

2.1 GENERAL REMEDIATION OBJECTIVE METHODOLOGY

U.S. EPA has developed several guidance documents and directives for evaluation of risks associated with exposure to lead in soil. The Integrated Exposure Uptake Biokinetic (IEUBK) model for lead in children is appropriate only for sites where children are directly exposed to lead (U.S. EPA 1994). The IEUBK model is inappropriate for evaluating future potential exposures at Area 5 because adults are assumed to be the only receptors. Therefore, the receptor-specific lead ROs were developed using two U.S. EPA guidance documents: "Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil" (U.S. EPA 1996) and "Blood Lead Concentrations of U.S. Adult Females: Summary Statistics from Phases 1 and 2 of the National Health and Nutrition Evaluation Survey" (NHANES III) (U.S. EPA 2002a). These documents present U.S. EPA's most current position regarding evaluation of potential adult exposures to lead in soil. U.S. EPA (1996) describes a methodology for estimating fetal blood lead concentrations in women as being appropriate for estimating nonresidential adult exposures to lead in soil. U.S. EPA (2002a) presents the agency's latest guidance regarding key parameters considered in the adult lead model (ALM) methodology.

The lead ROs were calculated using Equation 1, which was adapted from the U.S. EPA (1996).

$$RO = \frac{PbB_{GM}target - PbB_o}{BKSF \times IR_p \times AF} \quad (1)$$

where

RO	=	Remediation objective for lead in soil (mg/kg)
$PbB_{GM}target$	=	Target geometric mean blood lead concentration (microgram per deciliter [μg/dL])
PbB_o	=	Baseline blood lead concentration in adults (μg/dL)
BKSF	=	Biokinetic slope factor relating (quasi-steady state) increase in typical adult blood lead concentration to average daily lead uptake ([μg/dL]/[μg/day])
IR_p	=	Prorated soil ingestion rate (gram per day [g/day]). As described in Section 2.2, baseline soil ingestion rates were prorated over receptor-specific exposure durations in order to obtain soil

ingestion rates representative of "average exposure" conditions (U.S. EPA 1996).

AF = Absorption fraction (unitless)

START calculated a value for PbB_{GM}target using Equation 2 as recommended by U.S. EPA (1996).

$$PbB_{GM}\,\text{target} = \frac{PbB_{fetal,0.95,goal}}{GSD_{i,adult}^{1.645}\,x\,R_{fetal/maternal}} \qquad (2)$$

where

$PbB_{fetal, 0.95, goal}$ = Goal for the 95th percentile blood lead concentration (μg/dL) among fetuses born to women having exposures to the specified concentration of lead in on-site soil. This means that there is a 95 percent likelihood that a fetus in a woman having such exposures would have a blood lead concentration no greater than $PbB_{fetal, 0.95, goal}$.

$GSD_{i,adult}^{1.645}$ Estimated value of the individual geometric standard deviation – GSD - (unitless). This value is the GSD among adults (that is, women of child-bearing age) who have exposures to similar on-site lead concentrations, but who have nonuniform responses (for example, intake and biokinetics) to on-site lead and nonuniform off-site lead exposures. The exponent, 1.645, is the value of the standard normal deviation used to calculate the 95th percentile from a lognormal distribution of blood lead concentrations.

$R_{fetal/maternal}$ = Constant of proportionality between the fetal blood lead concentration at birth and the maternal blood lead concentration (unitless)

2.2 PARAMETER VALUES

START's use of Equations 1 and 2 to calculate lead ROs for Area 5 is consistent with U.S. EPA recommendations (U.S. EPA 1996). The values used for the parameters in Equations 1 and 2 are summarized in the table below. The basis for each of the parameter values is discussed following the table. Parameters in Equation 2 are discussed first, followed by parameters in Equation 1; this order of discussion was determined to provide the clearest presentation of the material.

Parameter	Unit	Value	Basis
PbB_{GM}target	μg/dL	3.11	Calculated - Equation 2
PbB_o	μg/dL	1.65	See text
BKSF	(μg/dL)/(μg/day)	0.4	Default (U.S. EPA 1996)
IR_p (industrial/commercial worker)	g/day	3.0E-02	See text
IR_p (construction worker)	g/day	3.6E-02	See text
AF	Unitless	0.12	Default (U.S. EPA 1996)
Parameter	**Unit**	**Value**	**Basis**
$PbB_{fetal,\ 0.95,\ goal}$	μg/dL	10	Default (U.S. EPA 1996)
$GSD_{i,\ adult}$	unitless	2.17	See text
$R_{fetal/maternal}$	unitless	0.9	Default (U.S. EPA 1996)

Equation 2 Parameters

In Equation 2, the values used for two of the parameters ($PbB_{fetal,\ 0.95,\ goal}$ and $R_{fetal/maternal}$) are consistent with default parameter values recommended by U.S. EPA (1996). To obtain the value for the third parameter, $GSD_{i,adult}$, START reviewed values reported for women by age and ethnic or racial characteristics. Values summarized by U.S. EPA (1996) and compiled in "Blood Lead Levels in the U.S. Population, Phase 1 of the Third National Health and Nutrition Evaluation Survey (NHANES III, 1988 to 1991)" (Brody and others 1994) have been superseded by more recent U.S. EPA recommendations (U.S. EPA 2002a) as described below.

The recommendations presented in U.S. EPA (1996) were based on the results of Phase 1 of NHANES III (Brody and others 1994). Data for Phase 2 became available after the publication of U.S. EPA (1996). U.S. EPA's most recent recommendations are based on statistical review of the combined data set from Phases 1 and 2 of NHANES III (U.S. EPA 2002a). U.S. EPA's

evaluation of the combined data set is consistent with recommendations from the Centers for Disease Control (CDC 1996).

U.S. EPA (2002a) presents values for $GSD_{i,adult}$ stratified by major race and ethnicity categories used in the NHANES III survey, such as non-Hispanic white, non-Hispanic black, Mexican-American, and "Other," and by four census regions: midwest, northeast, south, and west. U.S. EPA (2002a) recommends that estimates of $GSD_{i,adult}$ (as well as the background blood lead concentration [PbB_0]; see Equation 1) be based either on race and ethnicity group or on census region but not on both. Therefore, for the Area 5 assessment, estimates of $GSD_{i,adult}$ (and PbB_0) were based on race- and ethnicity-specific values for the entire NHANES III data set. Also, CDC states that "due to the small sample sizes and related uncertainty, the results shown for the 'Other' race and ethnicity group should be interpreted with caution" (CDC 1996). Therefore, for the purpose of the assessment, results for the "Other" category were not considered.

The results presented in Table 3a in U.S. EPA (2002a) indicate that among noninstitutionalized women from 17 to 45 years of age (women of child-bearing age), the $GSD_{i,adult}$ for all women was 2.11 and ranged from 2.09 (non-Hispanic white) to 2.16 (non-Hispanic black) to 2.29 (Mexican-American). Mexican-American is the equivalent of Hispanic in the assessment calculations. Area 5 of the Schroud property is located in a mostly industrial area of Chicago and is bounded by Wolf Creek to the north, Penna Railroad tracks and Avenue O to the east, 130th Street to the south, and South Chicago and Southern Railroad tracks to the west. The ethnic composition of the potential population of workers in the region surrounding Area 5 was estimated based on 2000 census demographic information for Chicago (U.S. Census Bureau [CB] 2001). Information for this region was used because Area 5 lies entirely within Chicago and it was assumed that the workforce would live in the city as well.

The 2000 census allowed people to identify themselves with two or more races. Those that chose Hispanic in addition to another race (for example, black/Hispanic) were incorporated into the total Hispanic population only. This approach ensured a more conservative value for $GSD_{i,adult}$ because the value for Hispanics is higher than the value for black or white populations. The potential population of workers for Area 5 was estimated to be about 31 percent white, 36 percent black, and 26 percent Hispanic as summarized below. Only the categories of white, black, and Hispanic were included in the assessment to correlate with the data available from U.S. EPA

(2002a). The remaining percentage (about 7 percent) of the total population is composed of a mixture of other ethnic groups and was not considered in the calculation of $GSD_{i,adult}$ (CB 2001).

Community	Population	Percentage
White	907,106	31
Black	1,053,745	36
Hispanic	753,644	26
Average Total	2,714,495	93

Source: CB (2001)

The final value for $GSD_{i,adult}$ is 2.17 (see Equation 3) and represents a weighted average of the ethnic group-specific $GSD_{i,adult}$ values presented above.

$$\frac{(2.09 \times 0.31)}{0.93} + \frac{(2.16 \times 0.36)}{0.93} + \frac{(2.29 \times 0.26)}{0.93} = GSD_{i,adult} \qquad (3)$$

$$0.697 + 0.836 + 0.640 = 2.17$$

This value falls within the U.S. EPA-recommended range for $GSD_{i,adult}$ of 2.1 to 2.3 based on stratification by race and ethnic group (U.S. EPA 2002a).

Equation 1 Parameters

In Equation 1, the values used for two parameters, BKSF and AF, are consistent with default parameters recommended by U.S. EPA (1996). The results presented in Table 3a in U.S. EPA (2002a) indicate that among noninstitutionalized women from 17 to 45 years of age (women of child-bearing age), the geometric mean background blood lead concentration (PbB_o) for all women was 1.53 µg/dL and ranged from 1.45 µg/dL (non-Hispanic white) to 1.70 µg/dL (Mexican-American) to 1.78 µg/dL (non-Hispanic black).

The final value for PbB_0 is 1.65 and represents a weighted average of the ethnic group-specific PbB_0 values presented above (see Equation 4).

$$\frac{(1.45 \times 0.31)}{0.93} + \frac{(1.78 \times 0.36)}{0.93} + \frac{(1.70 \times 0.26)}{0.93} = PbB_0 \quad (4)$$

$$0.483 + 0.689 + 0.475 = 1.65$$

This value falls within the U.S. EPA-recommended ranges for PbB_0 of 1.4 to 1.8 and 1.6 to 1.9, which are based on the range of geometric means for the three major race and ethnic groups and on the 95 percent upper confidence limits of the geometric means for the three major race and ethnic groups, respectively (U.S. EPA 2002a).

Receptor-Specific Soil Ingestion Rates

As stated above, receptor-specific lead ROs were developed for two types of workers: industrial/commercial and construction. U.S. EPA guidance recommends that estimates of Pb_0B levels and of lead ROs that are based on acceptable Pb_0B levels be based on average exposure conditions (U.S. EPA 1994, 1996). Therefore, baseline soil ingestion rate (IR_0) values representative of industrial/commercial and construction worker scenarios had to be modified in order to reflect the respective exposure frequencies. Receptor-specific IR_0 values are discussed below.

U.S. EPA recommends a soil IR_0 of 50 mg/day for industrial/commercial workers (U.S. EPA 1996) and 330 mg/kg for construction workers (U.S. EPA 2001a). However, these IR_0 values are estimates, do not reflect any direct measurements of soil ingestion, and almost certainly overestimate the amount of soil to which workers may be exposed in Area 5. The basis for the receptor-specific soil IR_0 values used in the Area 5 assessment is described below.

Direct measurement data on rates of soil ingestion for adults are very limited. The U.S. EPA's "Exposure Factors Handbook" (U.S. EPA 1997) identifies three primary studies: Hawley (1985), Krablin (1989), and Calabrese and others (1990). The IR_0 recommended by Hawley (1985) is only an estimate and does not reflect any direct measurement of soil ingestion. The Krablin (1989) and Calabrese and others (1990) studies both have significant limitations, including poorly described protocols (Krablin 1989), a small sample size (both studies), and a brief study period

(Calabrese and others 1990). The methodology used by Hawley (1985) to estimate an IR_o for construction workers is reasonable; however, the IR_o calculated using this methodology is flawed because of a significantly inflated soil adherence rate. As shown below, the Hawley (1985) methodology can be used with updated U.S. EPA-recommended soil adherence rates to develop soil IR_o values for adults performing activities similar to those expected to occur in Area 5.

In the absence of specific data on rates of soil ingestion, Hawley (1985) estimated soil ingestion based on an assumed mode of transfer of soil from hands to mouth. The key assumed values that Hawley used to calculate the amount of soil ingested in this manner were the soil adherence factor (AdF), the skin surface area from which soil is removed, and the frequency of ingestion. Direct measurement data for these assumed values are not provided by Hawley (1985). The soil AdF used by Hawley and the basis for the IR_o recommended by Hawley are presented below.

1. **Soil AdF (also referred to as soil loading)**: The layer of soil on hands was assumed to be 50 microns (μ) thick with an assumed density of 1.5 grams per cubic centimeter (g/cm^3). Because "considerations of geometry indicate that tight packing of dust particles on a surface would result in approximately one half of the apparent volume of dust being voids between particles," a correction factor of 0.5 was used in the calculations (Hawley 1985). The resultant soil loading of 3.75 mg/cm^2 was calculated as shown in Equation 5.

   $$(50\ \mu) \times (10^{-6}\ m/\mu) \times (100\ cm/m) \times (1.5\ g/cm^3) \times (1{,}000\ mg/g) \times 0.5 = 3.75\ mg/cm^2 \quad (5)$$

   Note: There appears to be an error on page 298 of the Hawley (1985) article. The soil loading (AdF) is given as 3.5 mg/cm^2, not 3.75 mg/cm^2; however, calculations presented on the same page indicate that Hawley used 3.75 mg/cm^2 and not 3.5 mg/cm^2 as stated.

2. **Basis for IR_o**: The amount of soil ingested was based on an individual assumed to be working outdoors for an extended period of time. The person was assumed to ingest twice daily a quantity of soil corresponding to one-half the covering of the inside surface of the fingers and thumbs of both hands. The area of the inside surface of the fingers and thumbs was assumed to be 14 percent of the total hand surface area, and the surface area of both hands is given as 910 cm^2 (Hawley 1985).

Based on the information provided above, the soil IR_o recommended by Hawley was calculated as shown in Equation 6.

$$(3.75\ mg/cm^2) \times (910\ cm^2/event) \times (0.14) \times (0.5) \times (2\ events/day) = 480\ mg/day \quad (6)$$

The soil AdF of 3.75 mg/cm^2 assumed by Hawley significantly exceeds current U.S. EPA-recommended soil AdFs, which are based on direct measurement of the mass of soil adhering to

the skin of receptors comparable to those considered in the Area 5 assessment. In particular, U.S. EPA's "Risk Assessment Guidance for Superfund (RAGS), Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment" (U.S. EPA 2001b) presents activity- and body part-specific soil adherence factor values for a range of different receptors based on data presented by Holmes and others (1999) and by Kissel and others (1996a, 1996b, and 1998).

U.S. EPA's RAGS Part E recommends an adherence value of 0.2 mg/cm^2 for industrial/commercial receptors (U.S. EPA 2001b). This value represents the 50^{th} percentile for utility workers (see Exhibit C-2 in U.S. EPA 2001b); U.S. EPA considers utility work to be a high-contact activity. If this value is inserted in Equation 6, a soil IR_o can be calculated as shown in Equation 7.

$$(0.2\ mg/cm^2) \times (910\ cm^2) \times (0.14) \times (0.5) \times (2\ events/day) = 25.5\ mg/day \quad (7)$$

Although the calculated IR_o value of 25.5 mg/day is less than the U.S. EPA-recommended value of 50 mg/day, it was concluded that the U.S. EPA-recommended IR_o value of 50 mg/day should be used to conservatively represent industrial/commercial workers.

U.S. EPA recommends using an IR_o value of 330 mg/kg for construction workers (U.S. EPA 2001a). This value is based on the "95^{th} percentile value for adult soil intake rates reported in a soil ingestion mass-balance study by Stanek and others (1997)" (U.S. EPA 2001a). As noted above, U.S. EPA recommends evaluating risks associated with exposure to lead in soil based on average exposure conditions (U.S. EPA 1996). Use of a 95^{th} percentile value is not consistent with "average exposure conditions." RAGS Part E presents soil adherence factor values specific to construction workers (U.S. EPA 2001b); the 95^{th} percentile soil adherence factor value presented for construction workers (see Exhibit C-2) is 0.302 mg/cm^2. If this value is inserted in Equation 6, a soil IR_o can be calculated as shown in Equation 8.

$$(0.302\ mg/cm^2) \times (910\ cm^2) \times (0.14) \times (0.5) \times (2\ events/day) = 38.5\ mg/day \quad (8)$$

As a conservative measure, this calculated soil IR_o was rounded up to 100 mg/day, and the higher (more conservative) value was used as the soil IR_o for construction workers.

Therefore, for the Area 5 assessment, the following receptor-specific baseline soil IR_o values were used: 50 mg/day for industrial/commercial workers and 100 mg/day for construction workers.

To calculate receptor-specific soil IR_o values that are representative of "average exposure" conditions, U.S. EPA recommends prorating the baseline soil IR_o values over an appropriate exposure duration (U.S. EPA 1996). For example, U.S. EPA (1996) recommends use of an occupational exposure frequency of 219 days per year to evaluate industrial/commercial workers, stating that this value represents "the average time spent at work by both full-time and part-time workers." Specifically, the U.S. EPA-recommended IR_o was prorated over 1 year as shown in Equation 9.

$$IR_p = \frac{IR_o \times 219 \text{ days/year}}{365 \text{ days/year}} \quad (9)$$

Therefore, based on the U.S. EPA-recommended IR_o value of 50 mg/day and Equation 9, an IR_p value of 3.0E-02 g/day was calculated for the industrial/commercial worker.

Equation 9 had to be modified for the construction worker. Specifically, a construction worker was assumed to be exposed over a 1-year period. However, because construction work consists of many different specialties, it is unlikely that any specific construction worker would be on site for the entire 12-month exposure duration except for the construction foreman. However, the foreman is not expected to be engaged in actual construction work or to be close enough to such work to be directly exposed to soil for much of the time. The foreman's responsibilities would require that person to be away from areas of active construction in order to attend meetings or speak on the telephone, often in the site trailer. As a result, it was assumed that the foreman would be potentially exposed to lead in soil for a total of about 182 days (6 months) over the entire 12-month construction (exposure) period. Based on the assumption that a construction worker (represented by a construction foreman) would be exposed about 5 days per week for 26 weeks, an exposure frequency of 130 days per year was used for the construction worker. Use of exposure frequency and exposure duration values of 130 days per year and 365 days per year, respectively, in Equation 7 resulted in an IR_p value of 3.6E-02 g/day for the construction worker.

3.0 RECEPTOR-SPECIFIC LEAD REMEDIATION OBJECTIVES

The receptor-specific lead ROs calculated using Equation 1 and the parameter values presented in Section 2.2 are presented below.

- 1,014 mg/kg for the industrial/commercial worker scenario
- 845 mg/kg for the construction worker scenario

4.0 COMPARISON OF SOIL LEAD CONCENTRATIONS TO REMEDIATION OBJECTIVES

The receptor-specific RO values were compared to lead concentrations measured in Area 5 soil. All measured lead concentrations in soil samples were found to be less than the RO value for industrial/commercial workers. The only concentrations of lead in soil found to exceed the construction worker RO (845 mg/kg) were as follows: (1) 920 mg/kg measured in sample S-04, which was collected from surface soil (0 to 6 inches bgs) south of the tree line and railroad tracks at the northwestern boundary of Area 5 and (2) 890 mg/kg measured in sample S-07, which was collected from 0 to 6 inches bgs in a slag pile.

The construction worker RO (845 mg/day) is based on several conservative assumptions. In particular, the soil IR_o calculated based on U.S. EPA-recommended body part-specific adherence values was 38.5 mg/day. For the assessment of potential exposure to lead in Area 5, this value was conservatively rounded up to 100 mg/day, an overestimation of about a factor of 3. Because of the conservatism incorporated into the construction worker RO, the lead concentrations of 920 and 890 mg/kg in samples S-04 and S-07, respectively, are not expected to pose any significant risks.

5.0 COMPARISON SUMMARY AND CONCLUSIONS

The concentration of lead exceeded Illinois EPA's Tier 1 soil ROs for industrial-commercial and construction workers in nine of twelve surface soil samples collected at Area 5. However, lead was measured at soil concentrations less than the site-specific industrial/commercial worker RO and at concentrations exceeding the site-specific construction worker RO at only two sampling locations. The magnitudes of the exceedances (920 mg/kg and 890 mg/kg versus 845 mg/kg) were not especially large. Considering the conservatism incorporated into the construction worker RO, the lead concentrations of 920 and 890 mg/kg in samples S-04 and S-07, respectively, are not expected to pose any significant risks.

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APPENDIX D

IDPH LETTER

(1 Sheet)

Illinois Department of
PUBLIC HEALTH

Rod R. Blagojevich, Governor
Eric E. Whitaker, M.D., M.P.H., Director

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July 31, 2003

Mr. Mike Ribordy
On-Scene Coordinator
Emergency Response Branch
U.S. Environmental Protection Agency
77 West Jackson Boulevard
Chicago, IL 60604

Dear Mr. Ribordy:

At the request of the Agency for Toxic Substances and Disease Registry (ATSDR), we have reviewed the text of the TN and Associates Site Assessment Report for the Schroud Property Site in Chicago, Illinois.

Based on the limited data and site description provided in the report, we conclude the site does not pose a public health hazard. Elevated levels of lead, chromium, and manganese are present in some of the on-site surface soil samples; however, it is not clear that persons are currently being exposed the surface soil.

If the site is to be developed for industrial-commercial use, we recommend that more samples be collected to better characterize the 55-acre site. If such sampling is conducted, chromium should be speciated into chromium III and chromium VI for better dose-response analysis.

Please let us know if you would like to have our evaluation provided in the form of an ATSDR health consultation. If you have further questions, please contact me at 217-782-5830.

Sincerely,

Ken Runkle
Environmental Health Specialist
Illinois Department of Public Health

cc: Mark Johnson, ATSDR Region 5